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# BANCA NAZIONALE DEL LAVORO (BNL)

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## HEARING BEFORE THE COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS HOUSE OF REPRESENTATIVES ONE HUNDRED SECOND CONGRESS

FIRST SESSION

APRIL 9, 1991

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## BANCA NAZIONALE DEL LAVORO (BNL)

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TUESDAY, APRIL 9, 1991

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS,  
*Washington, DC.*

The committee met, pursuant to notice, at 10:05 a.m., in room 2128, Rayburn House Office Building, Hon. Henry B. Gonzalez [chairman] presiding.

Present: Chairman Gonzalez, Representatives Annunzio, Oakar, Vento, Barnard, Hoagland, Waters, Moran, Cox, Slattery, Leach, and Bereuter.

The CHAIRMAN. The committee will please come to order.

I think I should announce that the advent of some very tragic occurrences that you have read about in the newspaper will mitigate against having a large presence, not only in this committee, but throughout the House.

The proceedings that were scheduled for the House have as much as been cancelled, or there won't really be any legislative business today or tomorrow, and then even on Thursday, it will be very light, probably a non-voting schedule.

So against this backdrop, though, we are proceeding with the hearings because of the simple fact that the real preventive factors won't really occur until tomorrow, fortunately.

But I want to announce for the members that are here and others that tomorrow's announced hearing and markup will be postponed until Thursday, preceding the appearance of Chairman Seidman at 10 a.m. But you will get a regular notice.

Today's hearing is the second in a series of hearings aimed at getting to the bottom of the Banca Nazionale del Lavoro scandal. Since we held our first hearings last October on the Atlanta branch of BNL, which loaned, as you know, billions of dollars in credit and whatnot to what we now know as our now enemy—not then—Iraq, much has taken place.

The Justice Department in February charged ten defendants, including two former officers and an employee of the BNL-Atlanta for mail and wire fraud. In March, three former employees of BNL-Atlanta pled guilty to conspiracy to commit fraud and other charges, and the Federal Reserve Board has issued a cease and desist order against BNL and ordered the bank to halt its violations of civil banking laws.

Of course, I might say by way of parenthesis, always this is after the fact, and I think if Justice were to really be committed, we would put as codefendants our regulatory authorities in our country.

The documentation and information of the links between BNL funding and Iraq's procurement of military goods continue to grow, as does the knowledge that maybe someone did know that BNL was illegally funding Iraq and that Iraq was using the monies for its war machine.

On February 21, I said on the House floor that I had obtained a memo indicating that a top-ranking administration official from a Cabinet-level department had knowledge that BNL money was used to purchase military goods.

Because of the importance of the BNL case, I believe it essential to find out how BNL could lend \$4 billion to Iraq without any of the banking regulators, the Federal Reserve, or five of the State banking regulatory agencies even noticing. There is a suggestion that someone in the administration did know and chose not to share this information with the Congress, which means the people, or the press.

The BNL case is the largest individual banking fraud case in history. As an oversight committee, we are required to make sure that the banking regulators do their job. Yet it was apparent at our October 16 BNL hearing that the regulators had come well armed with excuses, but apparently were unprepared to issue an apology for their lax supervision.

How can anyone not be angered by this regulatory fiasco, when we know the human toll involved? This is not just another oversight hearing where we criticize the regulators for wasting tax dollars. The lax work of our commercial bank regulators in not spotting the real situation at BNL and BCCI, the Luxembourg bank recently discovered to have secretly controlled First American Bankshares, the largest bank holding company in the nation's capital, leaves massive public policy questions that we must confront.

It is time to take a serious look at the idea of a consolidation that will provide coherent and effective supervision for our banking and financial entities in this country. The foundation of our financial system must be a strict, take-charge regulatory body that is not a captive of the banks it regulates.

The theme of today's BNL hearing is to place the \$4 billion in loans to Iraq in perspective. After all, during the time that BNL was lending these monies in a regulatory-deficient environment, it was the administration's policy to feed the Iraqi people, to bend over backwards to help the Iraqi regime upgrade its military capacity.

How could roughly \$2 billion in BNL loans go for these purchases and knowingly for the Ministry of Industry and Military Production?

Ours is the only country without safeguards to the national interest in such transactions. I am placing in the record datasheets that provide details on BNL loans to Iraq. BNL loans were the grease that permitted the Iraqi procurement machine to function. BNL loans went directly to several Iraqi front companies. For the most part, BNL loans were used to pay hundreds of companies in the United States and abroad that were recruited by the Iraqi network to export goods to Iraq. And, of course, at that time—and it is difficult to evoke that environment—it was the policy of the administration at that time to foster and stimulate those activities.

So I ask unanimous consent at this point in the record to present a background on BNL loans to Iraq and the documentation I have just referred to.

[The information referred to can be found in the appendix.]

The CHAIRMAN. Mr. Annunzio, do you have any statement?

Mr. ANNUNZIO. I have no statement, Mr. Chairman.

The CHAIRMAN. Ms. Oakar.

Ms. OAKAR. Mr. Chairman, I ask unanimous consent to put my statement in the record.

I just want to quickly say that I want to thank you for having this hearing, and I think it's very unfortunate that the very economic system that makes the United States such a great marketplace and conduit for international trade and banking can open the door for potential abuse, and I think that's why your monitoring what the regulatory system does in conjunction with this type of deception is very important.

But the BNL affair does raise questions regarding how our government conducts its foreign policy. The previous administration's decision to take Iraq off the list of countries that supported terrorism, thus making them eligible for trade within the United States, led to these events.

Credit that we eventually extended to Iraq would permit them to amass armaments, armaments we ironically had to destroy in Operation Desert Storm. The short-term gains of the policy we engaged in with Iraq have exacted a heavy price over the long haul, and I hope this administration and others in the future and Congress will pay careful attention to the lessons of the past.

So thank you again, Mr. Chairman, for your fine work and the work of your staff.

[The information referred to can be found in the appendix.]

The CHAIRMAN. Thank you. Mr. Bereuter, do you have any statement?

Mr. BEREUTER. No statement, Mr. Chairman. Thank you.

The CHAIRMAN. Thank you very much. Mr. Barnard.

Mr. BARNARD. Thank you, Mr. Chairman. Mr. Chairman, I also want to say that I think it's certainly appropriate that these hearings be conducted now that the war is over and for us to get a better understanding as to how conditions did develop that permitted Iraq to arm themselves as they did.

As you possibly know, we have in my Subcommittee of Government Ops we've conducted hearings all of last Fall on export licensings and how that policy was somewhat confused, to put it politely and it likewise permitted some very sensitive sales of materials that could have been used for chemical as well as biological warfare.

I guess what I am saying is that I think these hearings are timely by this committee and the Foreign Affairs Committee and other committees at this time to look into how much understanding we really have of the Middle East and the countries that make up the Middle East, because I think that sometimes we have developed policies both within the State Department, the Defense Department and the Commerce Department that unfortunately now indicate that we probably have less understanding of the govern-



ments and the peoples of the Middle East than we should have in order to carry out the proper negotiations with those countries.

I think that these hearings can serve a very useful purpose at least in permitting Congress to understand how these policies were made and what corrections could have been—what corrections should have been made and how we might address them in the future.

Thank you very much.

The CHAIRMAN. Thank you, Mr. Barnard.

Well, Mr. Cox, I want to thank you for your presence. Do you have anything—

Mr. Cox. Thank you, Mr. Chairman. I do have a very brief statement I would like to make and I thank you for calling this hearing today to continue the committee's investigation of the BNL scandal.

I am glad to have the opportunity to hear from today's witnesses in connection with the unauthorized lending of nearly \$3 billion to Iraq by the Atlantic agency of Italian-owned BNL and I appreciate their willingness to come here today to shed light on this matter.

The case of the BNL has caused us to question the competence of the administration, supervision and regulation of foreign bank branches within our boundaries. As members of the Banking Committee we have a particular responsibility to thoroughly review the BNL scandal. It is only through an understanding of this regulatory failure that we can hope to correct insufficiencies in the oversight of these entities which command over \$500 billion in U.S. assets.

The last several months in the Persian Gulf have demonstrated the far-reaching implications of a failure to properly monitor the operations of financial institutions like BNL. The Atlanta bank's unchecked financing of over \$850 million in U.S. agriculture products to Iraq along with the financing of a complex Iraqi technology procurement network contributed to the strength of Saddam Hussein and his regime.

The consequences of this empowerment have become all too clear.

As we continue this investigation it is my hope that we will receive cooperation from State and Federal agencies. We must make every effort to ensure that cracks in the regulatory system are repaired. Only then can future fraud and all its repercussions be avoided.

Thank you again, Mr. Chairman.

The CHAIRMAN. Thank you, Mr. Cox.

I'm going to ask unanimous consent that all members have the opportunity to place in writing their opening statement if they wish to prepare one, and Mr. Hoagland has indicated he doesn't, so if you do later on you can put it in the record.

[The information referred to can be found in the appendix.]

The CHAIRMAN. With that, we'll proceed and recognize our first witness. It's the Honorable Richard Newcomb, from the Treasury Department, the Office of Foreign Asset Control, and in an effort will detail the secret network of individuals and companies in the United States and Europe responsible for obtaining sophisticated Western technology for Iraq. On April 1, OFAC, this office, re-

leased a list of the individuals and companies acting as Iraq agents and there will be more details and what-not proceeding as we go into this hearing.

Let me just say that by no means has the environment changed any. The only and single purpose and intent that we have as a congressional body is to pursue a legislative end, and that is to do all that is possible as soon as possible to provide the absolutely necessary regulatory environment to protect the national interest.

There is nothing at this point that would prevent a repetition of identical or similar occurrences. We have in this country over \$635 billion of this kind of credit that I know no Federal agency from the Federal Reserve Board to any of the State—much less the State regulatory commissions really know what it's about, so we have no assurances, I think, and that's the only reason that we've called these hearings, that it is imperative that the policy-making body, the Congress, initiate and first obtain all the necessary and pertinent knowledge and documentation, the statutory structure for an improved and perfected regulatory environment.

Mr. Newcomb, thank you very much once again. You have cooperated with us all along and you may proceed.

We want to thank you for having given us your prepared text. We have about seven witnesses following you. If you wish to summarize your prepared text, your entire statement will be printed in the record as you gave it to us.

#### **STATEMENT OF RICHARD NEWCOMB, OFFICE OF FOREIGN ASSET CONTROL (OFAC), TREASURY DEPARTMENT**

Mr. NEWCOMB. Thank you. Mr. Chairman, members of the committee, I am pleased to be here this morning to discuss the Treasury Department's role in economic sanctions against Iraq and Kuwait. As you know, we have primary responsibility within the executive branch for implementing the financial and trade sanctions against Iraq and measures to protect assets of the government of Kuwait.

This morning I will address the topics and concerns in which you have expressed an interest, which relate principally to the blocking of these assets in the United States and our Specially Designated National program.

Following the Iraqi invasion of Kuwait on August 2, the President, acting under authority of the International Emergency Economic Powers Act, declared a national emergency and issued two Executive orders, which froze all Iraq and Kuwait government-controlled assets within the United States and imposed an immediate and comprehensive trade embargo. On August 6, the U.N. Security Council decided all U.N. member States should impose sweeping economic sanctions against Iraq and occupied Kuwait. On August 9, the President issued two more Executive orders, this time under IEEPA and the U.N. Participation Act, broadening the U.S. sanctions to include complete prohibition on trade with any person located within the territories of Iraq or Kuwait.

The Executive orders developed on August 2 and 9 were done in conjunction with the State and Justice Departments, the White House staff, the National Security Council, and so forth. These Ex-

ecutive orders essentially prohibited exports and imports of goods, any dealing with property of Iraqi origin, travel, transportation, performance of contracts, commitment or transfer of funds to any economic resource in Iraq, and blocked all property of the Government of Iraq located in the United States or in the possession or control of a U.S. person.

The August 9 Executive order with regard to Kuwait imposed essentially the same regimen on Kuwait, then under occupation. Since the liberation, the prohibitions on most trade and financial transactions have been removed, except for seven Kuwaiti banks, which, while remaining blocked, are licensed to utilize their assets to settle pre-August 2 obligations.

The objectives of these orders was to deprive Iraq of any economic or financial benefits which might result from its illegal occupation and to preserve and protect the assets of the Government of Kuwait for the benefit of their rightful owner. Iraqi assets blocked in the United States and in all U.N. members States may be used as a source of funds to pay claimants and creditors of Iraq if such a course of action is determined appropriate and enabling legislation is enacted. These orders immediately froze all property and interests in property of Iraq and Kuwait that were in the jurisdiction and control of the United States or U.S. persons.

On the morning of August 2, we began contacting the major money-center banks and requested the Fed to notify its members banks of the blocking. We cooperated closely with our allies, both bilaterally and multilaterally, through such organizations as the EC, the BIS, the OECD, and the U.N. Additionally, an ongoing program with foreign governments and their embassies enables us to act in concert with all governments worldwide to ensure uniform application.

On August 3, we immediately began announcing the first of a series of general licenses relating to many of the most immediate and pressing problems, such as what to do about oil on the high seas from Iraq or Kuwait, unwinding financial or securities transactions entered into prior to the freeze, what types of transactions or investments by blocked companies or investment portfolios owned by Kuwait should continue unimpeded, payments due under letters of credit involving U.S. banks for goods and services exported prior to August 2. These decisions were crafted to ensure that the transactions permitted thereunder are consistent with the objectives of the sanctions and do not confer any rightful benefit on Iraq.

Very early we began meeting regularly with Kuwait officials to begin the lengthy process of identifying and clarifying the status of Kuwait-owned entities around the world and licensing limited operations.

Our efforts regarding Kuwait focused heavily on identifying and clarifying the banks and financial institutions and communicating this information through the Federal Reserve System. In identifying and blocking Iraqi assets, we have relied on the cooperation of allied governments, other Federal agencies, the business community, and the investigation efforts of our own staff.

The frozen Kuwaiti investments have totalled billions of dollars and consisted primarily of bank deposits, debt and equity securities

involving both direct and portfolio investment, and real estate. Most of these assets were owned by licensed Kuwaiti entities, such as the Kuwait Investment Office or the Kuwait Investment Authority.

Blocked Iraqi assets will total more than \$1 billion, which are primarily in bank deposits and oil revenue.

We have recently undertaken an initiative to identify front companies and agents used to acquire technology, equipment, and resources for Iraq. This is called the Specially Designated National Program. We have the authority to specially designate—that is, to identify publicly and to block—any person, whether an individual or a business, directly or indirectly owned or controlled by the Government of Iraq, or who purports to act for or on behalf of it. In practice, a Specially Designated National is an Iraqi government body, representative, agent, intermediary, or front, whether overt or covert, that is located outside of Iraq and functions as an extension of the government. It may be a firm created by the Iraqi Government, or it may be a third-country company that otherwise becomes owned or controlled by the Iraqi government or that operates for or on its behalf.

On April 1, we formally identified 89 businesses and individuals worldwide as front companies and agents. The list is not a static document, but will be continuously augmented as additional front companies and agents are identified.

For U.S. persons, dealing with an Iraqi SDN is equivalent to doing business with the Government of Iraq, an activity that is prohibited by Executive order. Violators are subject to severe penalties, pursuant to the Iraq Sanctions Act.

Thank you, Mr. Chairman. It's a pleasure to be here, once again. I will be delighted to answer any questions that you or the committee members may have.

[The prepared statement of Mr. Newcomb can be found in the appendix.]

The CHAIRMAN. Thank you very much, again, for having submitted your statement in ample time for us to review it, and also for sort of succinctly summing up.

Now that you have a restoration of a Kuwaiti Government, as I understand it, reading the newspapers, what is the net effect of the Executive order of August 9? Has that been lifted with respect to Kuwait and its restrictions or a freeze on assets?

Mr. NEWCOMB. As required by the Iraq Sanctions Act, the President has notified the Congress that we would begin the process of lifting sanctions against Kuwait. Accordingly, we have done so on the trade, travel, transportation, and brokering provisions. Those were lifted in mid-February. On February 25 we lifted the asset freeze, with the exception of seven Kuwaiti banks, which are in the process of, in an orderly process, paying off their obligations.

I would point out that this was done at the request of the Government of Kuwait and the central bank, who offered to guarantee and be the lender of last resort in the event that there were any shortfalls in these financial institutions in meeting their obligations.

So, in essence, what we have is a work-out going on. We anticipate that should last for maybe another 4 to 6 weeks.

We have licensed those banks to issue letters of credit and to enter into foreign-exchange transactions. I expect them to be fully up and operational soon.

The CHAIRMAN. The other question that concerned me, from our standpoint: The Federal Reserve Board, for instance, tells us that central bank accounts of other countries are not to be accessible, except that we know that this particular kind of bank account, the Central Bank of Iraq, for instance, and the private bank accounts at some of our large U.S. banks, were not supervised by the Federal Reserve like they do other central bank accounts that apparently are maintained and that they apparently do supervise. The Federal Reserve Board did tell us that it is not in the best interest of the United States to collect information on the private bank accounts maintained by central banks. I do not know how to distinguish that fine point there. Would it be easier to enforce sanctions if the Federal Reserve was required to gather information on all central bank accounts?

Mr. NEWCOMB. I believe, on that fairly technical question, I would defer to the Fed, but let me just add that the embargo was put in place on August 2. From that date until the present, we have had extraordinary cooperation from all money-center banks, all banks where there have been correspondent relationships between both Iraqi and Kuwaiti Government institutions, and, for that matter, all of our other sanctions programs. I cannot think of an instance where we have not had the kind of cooperation and information we have needed since August 2, so I think your question goes to really a larger matter that is out of my province to really comment on.

The CHAIRMAN. In some business circles in our country, we have reports from them that the Emirate, for instance—the family of the Kuwait Emirate regime—had in their individual family name placed billions of dollars—in their name, not in the central bank's name or the government's name. Do you have any knowledge about that?

The greater portion—a good, substantial amount of that—in fact, the report I had was that it was way over \$160 billion in the United States, and more than that in European and Swiss banks—do you know if there is anything to that, and does the order cover that private family account?

Mr. NEWCOMB. Let me answer your last question first, and I think it will dispose of your earlier one.

The CHAIRMAN. OK.

Mr. NEWCOMB. No, the order does not cover private holdings of Kuwaiti citizens—nor, for that matter, private holdings of Iraqi persons, unless they are acting for or on behalf of the government. So we would not, in the Kuwaiti institutions, have collected the kind of information going to private individuals, whether they be royal family members or private citizens, or anyone else.

The CHAIRMAN. So that this family and its accounts—and the estimate was very, very faithfully reported, not only American sources but European sources, to me—in that substantial amount then would not be covered by the Executive order.

Mr. NEWCOMB. That is correct.

The CHAIRMAN. It's amazing.



Mr. Annunzio, I think my 5 minutes, even though I have not received a note.

Mr. ANNUNZIO. Go ahead.

The CHAIRMAN. No, no. Go on ahead. I think we have to keep a tight control.

Mr. ANNUNZIO. I have just one question at this time, Mr. Newcomb.

There were recent reports in the *Wall Street Journal* that the United States had approved an Iraq oil shipment purchased by the Coastal Corporation after the oil embargo, only to have the Saudi Arabian government prohibit the shipment of the oil. Why would the U.S. Government OK this shipment despite the trade embargo?

Mr. NEWCOMB. This shipment, let me say, never did leave Saudi Arabia, did not enter the United States. On August 2, we issued a policy which authorized oil on the high seas to enter the United States, and under that decision something in the neighborhood of 30 oil tankers, containing perhaps as much as 40 million barrels of oil, did enter the United States under specific license by the Treasury Department. In order to get this oil entered, payments had to go into a blocked account, either in the United States or subject to U.S. jurisdiction. In essence, what we got was Iraq's oil and Iraq's money.

This revenue has accounted for perhaps \$500 million of the blocked Iraqi deposits currently subject to U.S. jurisdiction and will be utilized for the purposes of paying claims that U.S. claimants might have against Iraq. The only distinction that would be made with that particular shipment—as I pointed out, events evolved so that it did not ultimately enter—was that it would have entered the United States after our predetermined arrival date of, I believe, September 30. It was in mid-October, but we would have achieved the same goals: It would have been oil entered into the United States; payments would be made into a blocked account. Plus, I was also told at the time—we were told that it was a particular grade of oil that could be utilized for jet fuel.

Mr. ANNUNZIO. I have another question. Iraq had attacked Iran in 1980, gassed its own Kurdish people in 1985, and hung a British journalist in early 1990. It invaded Kuwait in August 1990. Finally, 8 months after the invasion, after the U.S.-led coalition had won the war to free Kuwait, did your office release a list of Iraqi front individuals and corporations? Why was this information not being compiled through intelligence sources before the invasion of Kuwait, especially given the Iraqi track record of the 1980's?

Mr. NEWCOMB. With regard to the Treasury Department, we did not become officially involved—we did not have the authority; we did not have the mandate—until August 2. Immediately following the imposition of the Executive order, we had certain high-priority items which needed to be resolved immediately. We also immediately began compiling the information necessary to put out the Iraqi front-company list. We continue to work on that initiative and will continue to update it.

Mr. ANNUNZIO. To your knowledge, did the FBI or the CIA or any other agency work to compile this information for our government?

Mr. NEWCOMB. Let me say that, in compiling this information, we used our own sources available to us; we worked very closely with the Government of Kuwait, bilaterally with foreign governments; and we worked very carefully with the entire Federal law-enforcement community. They were all available to us, and they have all provided assistance.

Mr. ANNUNZIO. In other words, the FBI and the CIA were available to you to provide information.

Mr. NEWCOMB. Yes. They are routinely available to us, yes, sir.

Mr. ANNUNZIO. Did they provide any information, to your knowledge?

Mr. NEWCOMB. Well, if we need to go into executive session, I can brief you more fully on this, but let me just say, classified information has to be protected for methods and sources, and we just cannot take a classified source and use it. However, I can say that both agencies have been very cooperative in working with us, for the record.

Mr. ANNUNZIO. Thank you very much.

Mr. NEWCOMB. Thank you.

The CHAIRMAN. Mr. Leach.

Mr. LEACH. Mr. Chairman, I think Mr. Bereuter was here first.

The CHAIRMAN. Mr. Bereuter.

Mr. BEREUTER. No questions, Mr. Chairman.

The CHAIRMAN. OK. Mr. Leach.

Mr. LEACH. Mr. Chairman, I had a query of the chairman, if that would be appropriate. You noted in your opening statement that you had a memo relating to a high-ranking administration official having knowledge about some information. Are you prepared to make that memo available to the minority?

The CHAIRMAN. Oh, yes. It should have been.

Mr. LEACH. OK.

The CHAIRMAN. I am pretty sure it has been, but we will make sure that you do have it.

Mr. LEACH. I would appreciate that very much.

The CHAIRMAN. Absolutely.

Mr. LEACH. I have just one question for the witness, if I could.

The CCC is apparently potentially liable for a rather large sum of money with regard to these transactions. What is the U.S. Government doing in terms of holding the Government of Iraq liable, and is the CCC likely to be fully compensated—the CCC being the U.S. taxpayer, in this instance?

Mr. NEWCOMB. The CCC currently, as you know, has a claim against Iraq, I believe in the neighborhood of \$2 billion. We have blocked Iraqi deposits in the United States in the neighborhood of \$1.2 to \$1.3 billion. There are a variety of other claimants that are currently responding to a census we are conducting on other claims against Iraq.

There are several alternatives. Iraq could volunteer to utilize this money to pay off its Iraq claims in the United States. Barring that, the Congress could enact enabling legislation to vest and set up a claims settlement program, which, following earlier claims settlement programs, could be adjudicated before a commission, which could hear the validity of all claims.

Mr. LEACH. Are you recommending that approach?

Mr. NEWCOMB. I am not today, because I think we are still at a very early stage in working out U.N. resolution 687. As you know, there is a fund created pursuant to that resolution. I think working out those details is something that as we speak is being worked on, and we will continue to work. I do not think it is today's question, but I think it is an important question for the near future.

Mr. LEACH. Now, Iraq, as I understand it, has a rather extraordinary foreign debt.

Mr. NEWCOMB. Yes, they do.

Mr. LEACH. Most people that have assessed it have come to the conclusion that it is inconceivable that they can pay it back in the near future. Is that the judgement of the administration?

Mr. NEWCOMB. I do not believe I am prepared to speak as to how Iraq is going to be able to meet its obligations, but I can certainly concur with you. The debt is considerable.

Mr. LEACH. There are several issues at stake. One is the role of regulation. A government, with which we have less than friendly relations, was able to utilize credit from the United States to make both agricultural and possibly military purchases. And a government, whether it was friendly or not, probably lacked the financial wherewithal to pay it back, because its debts were escalating rather dramatically.

The second question is, from our perspective, not only does some of this credit appear to have been inappropriate, but it looks as if it was poor credit. I think that is of signal significance. In addition to the concern that there was illegal channeling of credit to make the kinds of purchases that we now find particularly unseemly, from a credit-risk perspective, these were not good credits. Second, if it wasn't good credit, who is going to pick up the tab? Quite clearly, this is not a circumstance simply where a bank made a mistake. This is a circumstance where the U.S. taxpayer is picking up a rather substantial amount.

If we did not have this S&L scandal, if we did not have the whole money-center bank problem, the sums of money involved would be of towering dimension. I mean, it used to be a million-dollar scandal was big time. A hundred million dollars was big time. This looks like a billion-plus-dollar credit scandal—forgetting that the purchases could have included military equipment. When this committee suggests that there may be regulatory accountability, it is very serious in that. I just wonder how the Treasury looks at this, simply from a credit perspective.

I mean, do you really think we are going to retrieve 5 percent, 10 percent, 100 percent of what is on the table?

Mr. NEWCOMB. Well, let me say that what you had outlined is an international issue, not just a U.S. issue. The exposure internationally is much greater than the exposure here.

Mr. LEACH. Would you explain that?

Mr. NEWCOMB. Well, I think the debt to Iraq—

Mr. LEACH. Oh, the debt to Iraq from other sources, that is true, but we are dealing with a government agency that extended credit. We are dealing with U.S. regulation of our banking system, and it is our banking system that provided part of that credit. I mean, recognizing that others are going to lose more than we, this is still a billion-dollar scandal, and that is not peanuts.

Mr. NEWCOMB. Well, I certainly concur in your characterization of the magnitude of the issue and concur that we are talking about very large sums. Our trade policy prior to August 2 was such that a financial institution could make those loans.

Mr. LEACH. There is a distinction between trade policy and prudent regulation of the banking system. Our committee's jurisdiction is the banking system. So, when the chairman suggests that there is something perhaps askew in regulation, I think he has got a de facto point. I mean, this is more than simply a foreign policy scandal.

The CHAIRMAN. Yes. Will you yield to me, Mr. Leach?

Mr. LEACH. Yes.

The CHAIRMAN. You are absolutely correct. We may ultimately have some aspects of this that we will refer to other committees. I think the restoration of some of the credit allocations, not only by the Agricultural—we hope to have a session, perhaps on the 17th, in which we will have the Export-Import Bank, which also had an exposure, but which was the first one to indicate that the Iraqi Central Government was not exactly creditworthy. But the State Department then said, you do it; that's their policy.

The big thing that I say, and the urgency—of course, there is no real perception right now—is that, for instance, it is very possible—the reason why these avenues are used is that it is amazing how much money, how much capital, can be raised through these stratagems, using this tremendous reservoir of money that is in our country. As I said earlier, it is much more than \$635 billion, and nobody knows, so you can raise this capital even now, and for God only knows what purpose.

For instance, Panama: We installed a regime, actually, and we imprisoned the leader as a drug-peddler, but actually the laundering and the drug traffic has not diminished one bit out of Panama; in fact, it has increased. In one sense, what we have got is an immediate oversight from our standpoint; that is, the safety and soundness of our system with respect to the regulatory oversight of foreign banking entities doing business in the United States.

There is also, even among our own banking fraternity, very little awareness of the vast differences in cultural, societal, and traditional ways of doing things. Most of the banking entities in these other countries are really government-owned, principally. There is an entirely different background. But those banking entities—say in Germany, for instance, where you have four or five what they call universal banks—but the bankers do not look upon themselves just as our private bankers do in the United States; they also look upon themselves as agents and officials of the government that are going to be in tune with official government policy. Of course, we have not had coherent government policy, but we also have an entirely different background and tradition, so that, in my opinion, this is an urgent need. It may not await a total restructuring of our regulatory system. We have got to do something about the fact that no regulatory agency from the Federal Reserve Board, as I said in my opening statement, to the State regulatory agencies, where they can charter the agencies and branches, have the ability nor the knowledge to oversee properly.

So, as we are meeting here today, transactions like this can be happening in another area.

Mr. Bereuter, I think you were seeking recognition.

Mr. BEREUTER. Mr. Chairman, I would ask unanimous consent that the gentleman have another minute.

The CHAIRMAN. Without objection, so ordered.

Mr. BEREUTER. Would the gentleman yield?

Mr. LEACH. Of course.

Mr. BEREUTER. I thank the gentleman and the chairman for pursuing this line of questioning, and I do not take exception to what they have said or the conclusions they draw, but I think there is another matter that probably should be put on the table at this point.

Just before the Iraqi invasion of Kuwait, on August 2, there was legislation on the floor which would have imposed a selective export embargo on American agricultural products. This gentleman opposed that as a selective embargo and suggested, if we were going to have an embargo, it should be across the board. At that time the administration told this Member—and I still believe it to be true—that the Iraqi government was repaying always appropriately and on time, any CCC export credits extended by the United States to Iraq to facilitate the purchase of American grain and food products. So at that time, at least, if that continues to be correct—if it was correct at the time—while the Iraqis may have a huge foreign debt, the track record on the sale of American products using CCC credits was just fine: they were paying rapidly; they were paying in cash; and they were paying in order.

That was the situation on which this gentleman made comments on the floor in the latter part of July.

I thank the gentleman from Iowa for yielding.

Mr. LEACH. Thank you.

Mr. Chairman, my time has expired, but I would make just one comment, if I could. I think this whole discussion underscores the need to go ahead with a re-look of the regulatory system. The administration has a very profound approach that I think we ought to consider. The chairman has a somewhat different one that is very respected.

I do think it does underscore the need for this Congress to act in a progressive way despite some of the views that we won't do anything this year. I think the administration at least does have a timely proposal that ought to be considered in that context.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Mr. Leach. You are one of the most important factors on this committee, so it is gratifying to hear that, because we should have a sense of urgency about the need to reform.

Ms. Oakar.

Ms. OAKAR. Thank you, Mr. Chairman.

Mr. Secretary, on page 13 of the staff report—which you do not have in front of you, I don't believe—a February report related to the role of Banca Nazionale del Lavoro in financing Iraq and the failure of the various Fed agencies, it indicates that to date the CCC—that is, the commodity credit program—has not suspended BNL from participating in the GSM-102-103 program.



Since Treasury has a vote on the NAC advisory council, why haven't you suspended this bank's opportunity to have taxpayer's money used to extend credit to questionable situations? Isn't performance one of the ratings you give some of these institutions?

Mr. NEWCOMB. Let me say, Congresswoman, that that is an area that I am just not in a position to answer. It is not within my area of supervision. I can get an answer for you and, certainly, respond for the record.

Ms. OAKAR. Well, would you submit that for the record?

Mr. NEWCOMB. I certainly will.

I also think that that's something that the Agriculture Department, too—

Ms. OAKAR. Well, I know they are, but Treasury does play a role in the Department of Agricultural commodity credit.

I think it is important for our businesses to have incentives for export opportunities, and that is why I have already supported the Commodity Credit Corporation and the program, as well as the Export-Import Bank. I think sometimes we fail to have the proper incentives for our businesses to export. On the other hand, we expect the proper agencies to be monitoring situations and deals that are made abroad, so that the kind of scrutiny that should take place does take place.

Now, if you take a look at the background on the BNL loans to Iraq, the \$2.2 billion in BNL loans to two Iraqi commercial banks and the \$2.155 billion in BNL loans to the Central Bank of Iraq, in one case over \$1 billion of credit was U.S. taxpayers' credit that financed these exports, and another \$900 million in the other deal was financed by our people, our credit corporation.

You just released a list of companies, some of which are from my own State of Ohio. What kind of checking does Treasury do as one of the NAC advisory council members with respect to whether or not these companies are really exporting agricultural products or whether or not—as in the case of the company in Solon, OH, they are really exporting military technology?

Mr. NEWCOMB. Did your question relate to what kind of checking?

Ms. OAKAR. Yes. What do you do? I mean, do you just take the company's word that they are going to export, or that the company that gets the guaranteed loans? Our taxpayers—Mr. Leach, I think, alluded to this—are the ones that are going to eat the \$2 billion,—right?—guaranteed loans, if we don't retrieve that, which God knows when that will happen, right?

Mr. NEWCOMB. Well, on that point, let me say I think at some point, following earlier programs, there will be some kind of a settlement of claims program. The full extent of recovery is not clear at this point.

Ms. OAKAR. Settlement claims with whom?

Mr. NEWCOMB. Well, we have a pool of blocked Iraqi assets that creditors of Iraq in the United States presumably have a claim against if there is sufficient authority to vest that property and set up some kind of a program. We are not clear totally on the full extent of the claims. We have done a survey, and we are aggregating that data right now. We are trying to verify it from potential U.S. creditors of Iraq.

But on your earlier question, as to decisions made prior to August 2, again, that is something that neither I nor anyone under my supervision was involved in. I would be delighted—

Ms. OAKAR. Well, who knows from the Treasury Department?

Mr. NEWCOMB. It would be someone else within the Treasury Department, and the Agriculture Department.

Ms. OAKAR. Well, could you get the information for the record that would indicate what type of scrutiny this NAC advisory council—right?—and Treasury has one vote, correct? There are three agencies; am I right about that?

0—Mr. NEWCOMB. That is my understanding, but I am not—

Ms. OAKAR. Right. Well, could you get the information for the record that would indicate what type of scrutiny, in terms of these exports, was done by Treasury?

Mr. NEWCOMB. I can certainly go back and get the appropriate people to develop that information.

[The information referred to can be found in the appendix.]

Ms. OAKAR. Last—and my time has expired—and you may not know the answer to this, either—could you tell me whether or not—or could Treasury respond: Should Treasury have more of a monitoring opportunity and oversight over this credit corporation, even though it is under the auspices of the word “agriculture”?

Mr. NEWCOMB. Once again, I will get it for you for the record.

Ms. OAKAR. OK. I think it would be interesting to know that.

The CHAIRMAN. Mr. Barnard.

Mr. BARNARD. Thank you, Mr. Chairman.

Mr. Newcomb, attached to your testimony is a copy of the Federal Register of Wednesday, April 3, 1991. There is a list of companies—you have included a list of companies—would you identify for the record what is that list of companies?

Mr. NEWCOMB. As explained in the preamble to the Federal Register notice and in my testimony, those are companies identified as specially designated nationals of Iraq. These are individuals and companies—usually in third countries—that are acting for or on behalf of Iraq, either through an agency relationship, through direct ownership or control, acting for or on behalf of Iraq either overtly or covertly.

Mr. BARNARD. What agency of government is responsible for maintaining this list?

Mr. NEWCOMB. The Treasury Department.

Mr. BARNARD. The Treasury Department.

Do you maintain similar lists for other countries that would be designated as terrorist countries?

Mr. NEWCOMB. We maintain similar lists for countries where there is an economic embargo under one of two statutes: either the Trading with the Enemy Act or the International Emergency Economic Powers Act. In most cases, they are similar, but not all terrorist countries are embargoed.

But let me say we maintain such lists for Vietnam, North Korea, Cuba—we did with Panama—Iraq—

Mr. BARNARD. Libya?

Mr. NEWCOMB. Yes.

Well, let me just correct that. That is something we are currently working on and will have imminently.

Mr. BARNARD. How long have we had this particular list on Iraq?

Mr. NEWCOMB. Well, we began developing the information in August—at least the Treasury Department did.

Mr. BARNARD. We did not have it before August?

Mr. NEWCOMB. Well, we began compiling it. Certainly the information was under various stages of investigation, various stages of inquiry. Before going forward, we had to have sufficient reason to believe that, in our best good-faith judgement, these individual companies qualified. It required a lot of interagency coordination and bilateral coordination with foreign governments.

Mr. BARNARD. So, in other words, Iraq was an exception. We did not keep the records on Iraq before August 3, but we do keep records today on other countries designated as terrorist countries.

Mr. NEWCOMB. Not necessarily terrorist countries—embargoed countries.

Mr. BARNARD. But, now, what is an embargoed country?

Mr. NEWCOMB. An embargoed country is a country where the President declares a national emergency, uses extraordinary authority under several statutes, and invokes economic sanctions or embargoes for foreign policy or national security reasons.

Countries currently embargoed are Vietnam, North Korea, Cambodia, Cuba, Iraq, Kuwait—which was just lifted, Iran, South Africa and Libya. We have recently lifted sanctions, as you know, on Panama and Nicaragua. Those would be the countries.

There are other terrorist-supporting countries designated that are not embargoed; thus, we would not have such a list for them, because we do not have jurisdiction.

Mr. BARNARD. Do we secure the cooperation of allied countries—those, for example, that are determined countries? How do we get their cooperation in this particular effort?

Mr. NEWCOMB. Through routine enforcement-coordinating mechanisms. For example, in Iraq, we have been to the Bank of International Settlement, the EC Commission, and the OECD. Bilaterally we have coordinated with over 100 governments here in Washington, through the embassy. In every instance, we have raised this issue, and it is through routine sources, through counterpart agencies.

Mr. BARNARD. Are these lists made available to other agencies of government, such as the Federal Reserve?

Mr. NEWCOMB. Oh, yes. In fact, immediately upon publication of the list—let me point that, in total, we have over 500 such designations, and we anticipate many more. We have over 500 such designations, and they are communicated to the entire Federal law-enforcement community as well as to the Federal Reserve system, who immediately go to the branch Federal Reserve banks and then to all member banks. There is very wide dissemination of these names.

Mr. BARNARD. In other words—well, let me ask you this question. You may not see fit to answer it. In your opinion—let's say that a bank regulatory agency, such as the Federal Reserve, more likely the Comptroller of the Currency. If he had a list such as this as it applied to, say, Libya, would it be reasonable for them to suspicion loans to these companies as being financed by the Libyan government?

Mr. NEWCOMB. I understand your question. Does this provide notice that these entities are under our program—

Mr. BARNARD. Yes.

Mr. NEWCOMB. Blocked entities where transactions are prohibited. If there were an embargo in place against the country, such as Libya, then, if there is clear notice that U.S. persons may not conduct transactions—extending it to your bank question—the answer is yes, if I understand you correctly.

Mr. BARNARD. Yes. The point I am getting, of course, is that, during the time that BNL was making these loans to these various companies, if their bank records showed that they were making these loans—now, of course, we understand that there were two sets of records, one that they kept in a separate file in an automobile trunk, I understand, and then the other, official records.

Now, if they are official bank records, those that were available to the banking agencies to examine—if this list had been available, they would have been able to become suspicious of these loans; is that correct?

Mr. NEWCOMB. If it had been available, it would have identified what, in the best good-faith opinion of the Treasury Department, are entities acting before or on behalf of Iraq. That, under the hypothetical you have given, would be impossible, because, since there was no embargo in place prior to August 2, such a list could not be developed, as it would. All it could do is be advisory; there would be no force and effect of law, as there is now.

Mr. BARNARD. Thank you very much.

Mr. NEWCOMB. Thank you.

The CHAIRMAN. Thank you, sir.

Mr. Cox.

Mr. Cox. Thank you, Mr. Chairman.

Mr. Newcomb, I would just like to ask you a couple of questions in a couple of areas. In your statement you talk about the American people having every reason to be proud of the work done by Treasury in implementing its share of the responsibility with regard to sanctions against Iraq. Is it your opinion that those sanctions from the area of jurisdiction of Treasury were in fact working—are still working?

Mr. NEWCOMB. Yes, sir.

Mr. Cox. Second, in the letter of invitation that you received, there was a request of you to provide some information as to whether or not central banks and other foreign government-owned or -controlled banks operating in the U.S. were properly monitored, or are being properly monitored. Are you an appropriate person to ask that question?

Mr. NEWCOMB. I am the appropriate person with regard to those countries I have mentioned. With regard to those countries, I will give you an unequivocal yes. The reason they are properly monitored is because all transactions are blocked. Our relationships with the money-center banks, the Federal bank regulatory agencies, the Fed, the Federal law enforcement community, has worked very well in ensuring there is very close oversight.

As far as countries not subject to the jurisdiction of one of the statutes I have mentioned, I cannot comment.

Mr. Cox. I assume what you are saying is, as of the issuance of the Executive order of August 2; is that right?

Mr. NEWCOMB. That is correct. To be more clear on it, all transactions are prohibited, so there is no judgement call at all. You just can't do it.

Mr. Cox. What about before August 2?

Mr. NEWCOMB. Well, clearly there was not an embargo. There was not an Executive order. We did not have the authority. To answer your earlier question, I am not the right person.

Mr. Cox. All right. That was the concern that I had, because there is a clear lack of information in your statement, both in the written statement and the summary that you provided, with regard to the overall issue of regulation that I understand Congressman Leach's questions to be directed toward. The reason that is not there is because we were asking the wrong person; is that right?

Mr. NEWCOMB. That is correct.

Mr. Cox. OK. Thank you.

The CHAIRMAN. You're through?

Mr. Cox. Yes. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

The Chair will observe that it is about 5 minutes past 11. We have seven witnesses remaining, and I would recognize the remaining members for 3 minutes.

Mr. Hoagland, I believe you came in next.

Mr. HOAGLAND. I just have a question, Mr. Newcomb, about any remaining contractual obligations there might be to extend credit. As I understand it, there may be as much as \$500 million or more of credit obligations that have not yet been issued to Iraq. Are those still binding? Surely we are not continuing to provide credit under these documents.

Mr. NEWCOMB. These are credit obligations under CCC, GSM programs?

Mr. HOAGLAND. Yes.

Mr. NEWCOMB. Again, I think you will need to consult with the Agriculture Department on that. When our program goes into place, there is a blocking, so whatever existed beforehand becomes irrelevant, because any such transaction is prohibited; that is where it is; that is where it has been; and that is where it will be until U.N. resolution 687 goes into place and starts working out whatever phased lifting of sanctions on Iraq might take place.

Mr. HOAGLAND. I was hoping and expecting that you would say that. In other words, if there is a remaining, outstanding contractual obligation of as much as \$900 million—as some of the documents we have indicate—we have more than enough legal authority to block that, so it will not be extended to Iraq at this point.

Mr. NEWCOMB. At this time, that is correct.

Mr. HOAGLAND. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Mr. Slattery.

Mr. SLATTERY. Thank you, Mr. Chairman.

First of all, I just wanted to make a very brief comment and just observe that, when we look back to relations with Iraq prior to August 2, there was clearly a great deal of confusion within this administration as to what our policy with Iraq with respect to



trade should in fact be. I think we need to be candid and honest about that. There was great division even within the Congress as to whether we should, for example, terminate the export enhancement program to Iraq. We had a vote on the floor of the House just several weeks prior to the invasion, and the administration at that time had taken the position that the export enhancement program should not be terminated; in other words, we should continue to use taxpayers' money in this country to subsidize the sale of farm products, some of which were grown in my State, to Iraq. That was the administration policy.

If we recall correctly, the fact is that Secretary Mosbacher over at the Commerce Department was haggling with the Department of Defense over what was really a security-sensitive item and what was not, and there was a great deal of disagreement. I think we should keep that in mind so that, as we look forward in dealing with this sort of problem, I would like to know from you—and I apologize for being late; I had another hearing I had to be at earlier, but, just in hearing your comments and looking quickly over your testimony and studying it, there do not appear to be any suggestions on your part as to what can be done with respect to the Treasury Department to improve this situation in the future.

Mr. NEWCOMB. Well, let me say—

Mr. SLATTERY. Is that your testimony? In other words, the status quo with respect to the Treasury Department is fine. There may have been a problem with the Commerce Department, and there may have been a dispute with the Department of Defense and the Commerce Department, and there may have been a dispute in the Department of Agriculture with respect to the export enhancement program; but, in terms of your responsibility over at the Treasury Department, all is well. Is that what you are telling us?

Mr. NEWCOMB. No. I am not saying that. Let me say, I think right now we are in the process of coming out of Desert Storm. The U.N. has recently passed U.N. resolution 687. As you know, Kuwait was devastated. A lot is taking place. I think, in the context of the U.N. resolution, a lot of discussion will be had about where we go from here—

Mr. SLATTERY. Do you have any specific things that the Congress should do to improve the operation of the Treasury Department with respect to this problem that we are talking about?

Mr. NEWCOMB. No. I have no specific congressional recommendations.

Mr. SLATTERY. So the status quo and the authority you have to do your job is adequate; that is what you are telling me.

Mr. NEWCOMB. Yes.

Mr. SLATTERY. Do you have any observations that you might like to share with us in terms of how we might deal with these problems of the export enhancement program and some of the outstanding loan guarantees that the taxpayers in this country are going to be left holding the bag for?

Mr. NEWCOMB. Congressman, I do not think I would have much to add to that debate, other than what is, certainly, within the province of this committee at this time.

The CHAIRMAN. The time of the gentleman has expired.

Mr. SLATTERY. Thank you.

The CHAIRMAN. Ms. Waters.

Ms. WATERS. Mr. Chairman, I do not have any extensive list of questions here. I, too, would like to apologize for being late to the committee. I had other obligations that I had to attend to.

Let me just raise something so that I am clear. Your testimony here suggests that you really want to talk about what you do in relationship to the U.N. resolution that will dictate the terms of the peace settlement with Iraq. You are not here today really to talk about what happened in the past—is that correct?—the so-called secret Iraq technology procurement network, are you?

Mr. NEWCOMB. I am not here to discuss any particular case that might have been ongoing by any other Federal agency. As far as the Iraq procurement network, we have recently identified a number of Specially Designated Nationals which qualify as having participated in a network, but it is not case-specific to anything—

Ms. WATERS. Are you or anyone attempting to suggest that it was a secret and nobody knew about it?

Mr. NEWCOMB. Yes. I think a great deal of it was covert. I think they were not saying, "We're from Iraq, and this is where you come" if you want to deal with Iraq.

Ms. WATERS. And of course we are not sophisticated enough, nor do we have the resources, to do the kind of monitoring and investigation that would have led us to come to a conclusion?

Mr. NEWCOMB. Well, let me say it was a secret to the world, not just to the United States. They were acting in a way that it would not have been readily apparent that they were acting as agents for Iraq.

Ms. WATERS. So I am to conclude, then, that it was a secret and that we do not know how to prevent these kinds of networks, but we are going to try. Is that what we hear today?

Mr. NEWCOMB. Well, certainly what we are doing is exposing the one that exists, as far as—

Ms. WATERS. After the fact.

Mr. NEWCOMB. Well, I guess you could call it that.

Ms. WATERS. Well, then, if that is really what the testimony is all about, I suppose, Mr. Chairman, we should just get on with talking about what is to be done for the future, even though I would not have a lot of confidence in it if I am being told at this point that, with all of our knowledge and talent and sophistication, countries such as Iraq could elude all of our networks and be involved in this kind of secret technology procurement, then I will listen, but I just do not know what to think.

Mr. NEWCOMB. Just for the record, let me say that, prior to August 2, we had no authority to begin collecting this information. We had no charge from the President; the emergency statutes had not been invoked. This may have existed; indeed, many of these companies have been in existence for a while—not all covert; certainly some covert. Many were acting openly. But it was certainly not within the authority of the Treasury Department to begin acting in this manner prior to August 2.

Ms. WATERS. Well, let me just ask this, then: Did we know about it when Iraq was involved with the war with Iran? Did we know about these networks and support them?

The CHAIRMAN. The time of the gentlelady has expired.

You may answer for the record if such is required, unless you can briefly answer it now.

Mr. NEWCOMB. This information had not been compiled as it recently was.

Ms. WATERS. Thank you.

Mr. NEWCOMB. Thank you.

The CHAIRMAN. Mr. Newcomb, thank you again very much. You have been cooperative; you appeared here before. We are grateful to you.

Some of the members will be submitting questions in writing, some of those that could not attend the hearing. They will be submitted to you by the time you receive the transcript of this hearing. If they are timely, you, I am sure, will address those questions.

Mr. NEWCOMB. Certainly.

The CHAIRMAN. But thank you again very much.

Mr. NEWCOMB. Thank you, Mr. Chairman. It is my pleasure, as always.

The CHAIRMAN. Thank you, sir.

The Chair will also remind members we have seven witnesses. If we proceed as listed on panels, I am afraid we will be here until 5 p.m., so, in an effort to expedite and also give consideration to those that, through no fault of their own, are listed last as witnesses, we are going to invite all our friends—I want to thank in advance for having so cooperatively replied to our requests—to step forth and take your place. The little lady will have your name tags in front of the chairs.

We will proceed, one at a time, and each one will testify. As you noticed, the question period has taken the time, so we will then address the questions to the members of the group as a collective group.

First, Dr. Stephen D. Bryen, president of DeltaTech, Arlington, Virginia, and a former deputy under secretary of defense for trade security place, and an expert on U.S. export control process, and an authority on Iraqi efforts to obtain U.S. technology through the export licensing process; Mr. W. Seth Carus, a fellow of the Washington Institute for Near East Policy, an expert on Iraqi efforts to procure missile, nuclear, chemical, and biological weapon technology; Mr. Ken Moore, engineering consultant, expert in dual-use technology as it applies to munitions plan construction.

We have Mr. Jerry Kowalsky, president of CSI Technologies, San Marcos, California. Mr. Kowalsky indeed is an American hero. He received several awards for thwarting Iraqi efforts to obtain nuclear warhead detonators, alerting and working with the U.S. and U.K. customs services and the FBI on an undercover sting operation to stop this traffic; Dr. Beurt R. SerVaas, president of SerVaas Engineering of Indianapolis, Indiana. Dr. SerVaas will tell the story of how his firm was contacted by the main arm of the BNL-financed Iraqi procurement network operating in the U.S. Matrix-Churchill, Incorporated, of Solon, Ohio—Dr. SerVaas's firm was the beneficiary of \$40 million in BNL money that was used to start building a U.S. government-approved brass recycling plant near Baghdad. And Mr. A. Robert Abboud, chairman, U.S.-Iraq Business Forum and the director of the First City Bancorporation in Houston, Texas, an authority on U.S.-Iraq commercial and finan-

cial relations; and Mr. Marshall Wiley, president of the U.S.-Iraq Business Forum, founder of the U.S.-Iraq Business Forum, former U.S. diplomat and chief of the U.S. interests section at the Belgian embassy in Baghdad, prior to the normalization of U.S.-Iraq relations in 1984.

With that, let me advise that by no means is this to be interpreted that your remarks are to be considered in a less consequential or a more brief or abbreviated form. It is just a means of reducing the time-consuming aspects, which, as you were sitting here, you saw the question-and-answer period. If there is no objection, why don't we introduce you in the manner in which I read your names, and that would be Dr. Bryen first.

**STATEMENT OF STEPHEN D. BRYEN, FORMER DEPUTY UNDER SECRETARY OF DEFENSE FOR TRADE SECURITY POLICY**

Mr. BRYEN. Thank you, Mr. Chairman. I provided the committee with a statement, which you have.

The CHAIRMAN. Yes. Will you yield to me?

Mr. BRYEN. Yes.

The CHAIRMAN. I wanted to thank each and every one of you, because you did submit your statements in ample time for us to review them. Those will be printed intact in the record at this point, as you submitted them to us. Then the transcript will cover your verbal presentation.

Mr. BRYEN. Thank you, Mr. Chairman. Since the statement has been submitted, I am not going to read it. I would rather just try to summarize it briefly for you. I understand your concern about time.

You asked me to comment on U.S. export controls as they affected Iraq during the time I served in the Reagan administration, which was 1981 until 1988, as deputy under secretary of defense for trade security policy. I would like to do that.

You also asked me to comment about where we are now: what kind of system do we have now, and is it an adequate system? The answer to the second question is quite straightforward. We do not have a competent export control system today. It is a shambles, and it is getting worse, not better. The consequence is that extraordinarily sensitive exports of weapons technology can go from the United States, in many instances without export licenses at all. The entire regulatory operation in terms of export controls is haphazard. The rules are unclear and conflicting, and the system simply cannot function in an effective way. It is a candidate either for burial or reform, but, clearly, keeping the system the way it is will serve no goal other than to harass American companies.

As far as what happened in the 1980's, I have to take some exception to the previous witness. There was a lot of knowledge about what Iraq was up to, and there were efforts made. Certainly, my department made strong efforts internally to try and turn around what we considered to be a highly dangerous export to Iraq of materials and technology that we believed were going into Iraq's unconventional weapons programs.

An unconventional weapon is a weapon of mass destruction, such as a chemical weapon, a biological weapon, a nuclear weapon, or

the delivery systems for those weapons. That is where our primary focus was.

On numerous occasions—many, many cases—my staff and I personally raised objections to export licenses with the Commerce Department; we also raised those objections at the level of the National Security Council. The fact of the matter is that, in most instances, the exports went ahead. In one case, in 1987, the National Security Council advised us in its own inimitable way that we should be “more forthcoming” and that we should approve some of the cases that we opposed. We opposed them because they were going into these weapons programs.

The real truth is that what was going on was, the United States was in a big hurry to open up positive and good relations with Iraq. The keystone of that, I think, was trade. Therefore, any negative message from the likes of us that a certain transfer might be harmful was regarded as a setback to this thrust. The State Department, and particularly the Commerce Department, which was arranging trade fairs, including aerospace and other sensitive topics, did not want to be in the position of having to tell the Iraqi authorities, or Saddam Hussein himself, that a particular license had been turned down. Consequently, there was a lot of scheming; in many cases the Defense Department was cut out of the action altogether. Countless licenses were given, including licenses directly to the Iraqi military; as the list of Congressman Barnard’s committee shows, the end use in many cases was the Iraqi army, the Iraqi air force. Some of the equipment that went was pretty obnoxious—even equipment to repair rockets was licensed by the Commerce Department and concealed from the Defense Department.

I think the whole essence of the situation is that, during the 1980’s, we had a pro-Iraqi policy that we were following, that the regulatory effort failed and it failed for a lot of reasons, not the least of which is that it is pretty weak in the first place. It is failing as we speak today. It will continue to fail because of the way the system is set up, the way it operates. It is ready-made to be inoperative.

As far as nuclear nonproliferation, or proliferation of any kind of weapon of mass destruction, we are in grave risk, and we are at grave risk because the system simply cannot regulate these kinds of transactions. There is a story today, in the *Los Angeles Times*, about another case where a Commerce Department official, who turns out to be the same one who approved the CONSARC case, for high-temperature furnaces for Iraq’s nuclear program—the same official gave permission to a company in New Jersey to provide devices for missile separation to the Iraqis and told the company in New Jersey, “You do not even need a license for that”—a gross violation, in my opinion, of the export laws, but so what? I mean, the fact is that the system that we have is the wrong system and it needs to be reformed.

I think that is the essence of what I have to say, and I will be glad to answer questions further on. Thank you, Mr. Chairman.

[The prepared statement of Mr. Bryen can be found in the appendix.]

The CHAIRMAN. Thank you very much, Dr. Bryen.

Mr. Ken Moore—Well, actually, I beg your pardon. Mr. Carus. I don't know why I jumped over that far.

#### STATEMENT OF W. SETH CARUS

Mr. CARUS. Thank you, Mr. Chairman.

The CHAIRMAN. We had three on this panel, so I beg your pardon.

Mr. CARUS. That's quite all right.

I guess those of us who have been following Iraqi proliferation are not used to getting attention, so we are used to being passed over, at least until recently.

With your permission, I will do as the previous panelist did and just summarize some of the key points in my testimony.

The CHAIRMAN. Very good.

Mr. CARUS. What I will try to do is talk about three specific issues: First, Iraqi proliferation, to provide some context for what happened with the BNL affair; second, some observations on the U.S. policy towards Iraq having to do with unconventional weapons; finally, some observations about the character of controlling such activities.

It is important to realize that, while there are a lot of countries involved in proliferation, Iraq was unique in several important respects. I do not think there was a single Third World country that tried so hard to develop such a wide range of unconventional weapons capability so quickly. In some areas, it had one of the largest programs in the Third World. In other areas, it was just getting under way but clearly working toward similar capabilities.

A second point is that, unlike many Third World countries, Iraq was trying to develop autonomous production capabilities. That means that, not only were they trying to make a finished product, but they were trying to make the components that went into the finished products, and in some cases were trying to go all the way back to manufacture the raw materials. This meant that it posed particular problems, different from those of some other kinds of countries.

Finally, Iraq is ready and willing to use its unconventional weapons. There are very few Third World countries about which I would be as unambiguous as this, but we have ample evidence, both from the use of chemical weapons against the Kurds and also from the policies of the regime, that this is a country that could not be expected to use responsibly, quote-unquote, such weapons.

Now, in looking at the range of capabilities, I am just going to talk about the unconventional weapons programs, but it must be remembered, especially in the context of the BNL affair, that Iraq was also trying to develop advanced conventional weaponry. I suspect a tremendous amount of the money that was being used to buy military-related production hardware was in fact going into production of advanced conventional weaponry.

However, in the nuclear area, what we find is, they had a nuclear program. This dates back to the 1970's; it went somewhat inactive after the Israelis destroyed the Iraqi reactor in 1981, but in the late 1980's it was resumed, using West German technology. There were efforts to produce centrifuges for making highly enriched ura-

nium, which would be used in bombs. This was primarily West German technology. There were efforts to get certain components from the United States—we will hear a little bit more about that, I understand, later on—but it was primarily a European focus for the Iraqis.

A second area where the Iraqis were active was in chemical weapons technology. Iraq had the largest chemical weapons program in the Third World and in fact, because of the shutdown of production in the United States and the Soviet Union, they were the largest producer of chemical weapons in the world by the time Iraq invaded Kuwait. Again, this is production technology that came primarily from Europe. The Iraqis had production plants provided with the assistance of West German companies. They used precursor chemicals, the chemicals to make the chemical weapons, acquired from all over the world, including the United States, but also Japan and European countries. However, because of export controls, the Iraqis were trying to make those precursors themselves, and in fact were trying to go all the way back to the oil well, in terms of having an autonomous capability.

Much the same could be said about biological and missile capabilities. The missile program, however, was somewhat more complicated, because of Iraq's involvement in the so-called Condor program, which involved West German and Italian technology in conjunction with Argentina and Egypt. In addition, the Iraqis had a follow-on program, known as project 395, which was essentially going to develop similar types of missiles indigenously in Iraq, with technology from overseas.

Associated with the missile program was the so-called Saad-16 research and development complex, which was the recipient of much of the high-technology equipment provided from the United States.

Now, in terms of looking at this activity in the context of U.S. policy, my own feeling is that it is a somewhat mixed picture. The United States was in fact probably the most active country in trying to control exports of supplies for unconventional weapons programs to Iraq. In the nuclear area, the United States appears to have taken an active lead in trying to develop cases to put a stop to acquisition efforts. In the chemical area, the United States was a founding member of the so-called Australia Group, which tried to prevent Iraq from getting precursors. In the missile area, the United States, through the Missile Technology Control Regime, took an active role against the Condor program.

The complexity, however, of the U.S. position I think becomes more evident if you look at one of these areas, which was the chemical program. The United States did work actively against Iraq's chemical program in several ways. We were involved in the Australia Group. We had domestic controls; there were several vigorous prosecutions of American companies that supplied precursor chemicals to Iraq. And we had bilateral talks with friendly countries that were providing support to the Iraqi program. Nevertheless, as I said, it was a mixed picture. The United States never vigorously protested use of chemical weapons the way we should have. We ignored the obligations that Iraq had under the Geneva protocol not to use these weapons. Perhaps more to the point is that,

while we protested the activity of countries like West Germany in supporting these programs, we never really pushed the point extensively.

Now, that gets me to my conclusions, and I will try to wrap up quickly. I think that several points can be made that are somewhat important. First, unconventional weapons programs cannot proceed without financial resources. It is expensive to develop such weapons. They are called poor man's atomic bombs, but even a poor man's atomic bomb is a lot of money. This is, I think, the real significance of the BNL affair. If Iraq had not been able to get financial resources to support its activities, it probably would not have been able to do many of these things.

Second, I do not think the main problem was a lack of laws; it was a lack of policy guidance. Whenever the United States did decide to proceed, we were able to do it very vigorously. The problem was policies that were not consistently vigorous.

Third, we have got to make sure that other countries are as vigorous as we are. Typical is the problem of West Germany, which was a major figure in the Iraqi and which did not take enough steps to deal with, and which could be a problem again in the future.

Finally, there are limits to what you can accomplish through export controls, simply because, as countries get more sophisticated in what they do, the range of products that they need becomes greater and greater, until they are basically acquiring the full accoutrements of an industrial society. It becomes difficult to separate what is a legitimate commercial activity from what will eventually go into a nefarious production capability.

With that, I will close my comments. Thank you, Mr. Chairman.

[The prepared statement of Mr. Carus can be found in the appendix.]

The CHAIRMAN. Thank you very much, Mr. Carus.

I am going to recognize Mr. Annunzio for a unanimous consent request.

Mr. ANNUNZIO. I ask unanimous consent that I be given permission to submit for the record four questions.

The CHAIRMAN. Without objection, it is so ordered.

Mr. ANNUNZIO. Thank you.

The CHAIRMAN. Mr. Annunzio has other responsibilities heading other subcommittees, so he will be excused for that purpose.

Mr. Moore.

#### STATEMENT OF KEN MOORE

Mr. MOORE. In line with the previous witnesses, I submitted a statement. I think, rather than go over it all, I will concentrate on the thing I was asked to focus on.

The CHAIRMAN. All right, sir. Very well.

Mr. MOORE. Most of the equipment in use for production of ammunition and armaments around the world is not manufactured, originally, specifically for that purpose. It is adapted from commercial equipment. We forge shells, make airplane parts, and produce a lot of auxiliary pieces of equipment on the same machines that



are used for making bumpers for cars, plastic bottles for the pharmaceutical industry, and many other examples.

One example of this: Just last week I was in a plant where every piece of equipment used in the plant was dedicated to the manufacture of military goods, and every individual piece of equipment there could have been purchased from the manufacturer's catalogs. It is difficult to control the machinery, per se, even though in the International Traffic in Arms Regulations (the I.T.A.R.) there is a specific mention that machinery for the manufacture of ammunition is covered by the export regulations. Very few people go out and buy, say, a forging press to make artillery projectiles. They will buy the press and normally design their own tooling, and it is the tooling that goes with these presses, which is the critical part. It is also the part that the country would normally either farm out to someone else or do themselves, if they were anticipating—or attempting—to cover up their ultimate objectives.

I have given some examples in my testimony. Just to mention one—well, let me mention two. The centrifugal casting: There was a machine which we saw in the press, which was supposedly used to cast ductile iron sewer pipe. During World War II we made over 100,000 artillery gun barrels on that same type of machine. Well over 100,000. There was also a machine, called a rotary forge, and, until this thing came up, I must admit that my only experience with rotary forging was in the use of manufacturing gun barrels. But these machines by themselves are sort of like automobiles; you use them for whatever end purpose you want.

If I might go to the control aspect of this, it has been difficult, I think, to control the export of machinery when the mechanical engineering industry has been one of the mainstays of American industry, and in fact fuels the West German economy with the sale of machinery for the production of metal parts and for chemical plants. I think our controls in the past have focused a great deal on three areas. One is keeping high technology out of Soviet hands, keeping munitions in general out of unfriendly hands, and a more recent focus on guided missile technology. We see, I think, a trade-off there of national trade interests and the health of the American machine industry versus foreign policy considerations and international competition—things I am not really qualified to address.

The difficulty in controlling the equipment itself is that it is available from so many sources. Anything you can buy in the United States you can buy somewhere else. If someone is attempting to export that equipment from the United States, if you're an above-board nation like Pakistan, you come out with a tender saying, "We want to buy a press to forge projectiles", and then the manufacturer or the export agent goes to the State Department and says, "We have a tender to export a forging press, and it is going to Pakistan", and it may or may not be approved.

But if you are engaged in a more complex build-up, the one we have seen so much in the press with BNL, you are going to farm that operation out to two, three, five, twenty different companies. The only way that is going to come to light is either through the monitoring of the letters of credit as they flow through the banks or of the—well, the licensing application process or the customs

declarations at the time of export. This becomes a monumental task, and I am not sure just how one goes about that.

If I might, I would like to mention two other things. On the subject of the chemical weapons, I had a situation last year where I was approached by a company in the United States which operates one of America's own ammunition plants. They wanted a certain precursor chemical—is that the word?

Mr. CARUS. Yes.

Mr. MOORE. Required for the manufacture of one of our critical weapons systems. This was from the manufacturer who made the chemical itself and who loaded it into the weapons. At the bottom of their purchase order, in bold letters, it was stated this was not to be used for chemical weapons. I had to advise those people that we could not participate in a sale like that, because bringing in things like that would get our supplier in Europe in trouble, even though that particular chemical has many, many industrial uses, that particular plant has only one use.

I think that would conclude my summary, sir.

[The prepared statement of Mr. Moore can be found in the appendix.]

The CHAIRMAN. Thank you very much, Mr. Moore.

I wanted to emphasize to the colleagues that Mr. Moore appended to his testimony very excellent documentation that I would encourage the members to study carefully. It stresses his statement today.

Mr. Kowalsky.

#### STATEMENT OF JERRY KOWALSKY

Mr. KOWALSKY. Yes. CSI is a manufacturer of custom-designed, high-voltage pulse capacitors, a highly specialized form of a capacitor and a critical component in the triggering system for a nuclear device.

On September 6, 1988, I received a fax from our London agent transmitting an inquiry from a company called Euromac, acting for an Iraqi delegation. The technical specifications supplied exactly matched what I knew from prior experience to be that of a capacitor for a nuclear warhead trigger circuit. I immediately notified contacts at the CIA and Customs Service. As it was primarily an issue of export control, the CIA from then on was primarily passive, as far as their participation.

Special Agent Daniel Supnick of the Exodus program visited with me a day or two after I called him, and he requested that I quote a very good price, make an attractive proposal, and do everything possible to get a contract from Euromac. Thus, the sting was born, which became known as Operation Quarry.

A few months later, in November 1988, I met with Michael Hand, then the director of export sales for Euromac, in the offices of our representative in London. Hand went into great detail to impress us with the importance of Euromac. He indicated that, during—and he also said that the Iraqi government was Euromac's one and only customer. He claimed that Euromac, during the height of the Iranian-Iraqi war, had processed up to \$1 billion per month of merchandise for the war effort, and even now—the war

had ended earlier in 1988—he claimed that Euromac was still processing up to \$1 billion per year of material for Iraq.

He went on to say that Euromac had offices in not only the U.K., but also in Italy and in New Jersey. To the best of my knowledge, our authorities have not uncovered the New Jersey operation.

He explained that, while there was in his mind an official Iraqi procurement organization in the U.K. called TDG, whenever Iraq had a significant requirement, they went to Euromac rather than TDG. Much later, of course, it became public that TDG was a very major player in Iraq's clandestine war procurement network.

He went on to comment that Euromac had procured large quantities of explosion-proof switches from a California company called Custom Control Sensors. When I asked Hand who his customer in Iraq was for the capacitors, he replied, SORG. Actually, this is an Iraqi contraction for State Organization of . . . . He also implied that Euromac's managing director, Ali Daghir, was involved in many activities that Hand was not privy to and was in fact close to the highest levels of the Iraqi Government.

Hand was not technically qualified, so, even though there were some residual technical questions, they were not answered at the meeting. In fact, all through this period of 18 months, there was technical discussion going back and forth between myself, Euromac, and in some cases the Iraqi Government.

In April 1989, shortly after an article appeared in the *Washington Post* speculating on the resurgence of Iraq's nuclear weapons program, we received notification that Mike Hand had left Euromac and that the project was terminated. I called Hand at his home and learned that his replacement at Euromac was one Jeanine Speckman, a French national, and that he, Hand, was now joining another export-import company. I called Speckman, and she told me she would be visiting Baghdad and would try to find out what was going on in regards to the capacitor program.

Shortly after that, an independent effort by Iraq to obtain these capacitors from another San Diego company, Maxwell Laboratories, was stopped when Maxwell became suspicious and notified Customs that the shipment was upcoming. This order was from the Ministry of Higher Education.

In July 1989, I received a fax from Speckman saying that, even though the program had been dead, she now had a contract from the Iraqis. She mentioned the name Al Qaqaa as her customer. She suggested that, since there were still loose ends, we visit Baghdad. We said that was not practical, but we did arrange a meeting in London in September of that year.

At the time, Al Qaqaa meant nothing to me. Later it was revealed to be the site of a large, secret military research facility and the location of a huge explosion on August 17, 1989, that killed as many as 700 people, including Egyptian and perhaps North Korean technicians. It was also there that Farzad Bazoft, a reporter for the British newspaper, *The Observer*, and his driver, Daphne Parish, were arrested for alleged spying. Of course, as you know, Bazoft was later hung for that alleged spying.

In September 1989, I flew to London and met with Agent Supnick, and we went to the hotel in London where the meeting had been arranged. At the hotel, we met first with Ali Daghir, the

managing director of Euromac, and Jeanine Speckman, then his sales manager. Shortly after that, we met with two Iraqi engineers, Karim Omran and Wallid Ahmad from Al Qaqaa.

Incidentally, when I asked them what Al Qaqaa meant, they said it was named after a famous Iraqi and it was the location of their research facility.

The meeting was held in the hotel's restaurant and took about 2 hours. Whenever a probing question was asked regarding the application, the Iraqis would lapse into Arabic and discuss between them before they would answer my question. A translation later had Ali Daghir saying, "You see, Americans are naive, stupid."

All capacitors had to meet military specifications for humidity, shock, and vibration. One had tighter specifications and was the one which we believed was intended for the nuclear detonator requirement. Regarding delivery, the Iraqis said the parts were urgently needed. My impression from their attitude was that Iraq's nuclear program was more advanced than many Western experts had at that time speculated. A contract was signed calling for 15 of the less critical parts and 40 of the detonator capacitor. A total of \$10,500 was involved, with delivery to be in 6 to 8 weeks. We were told the money was at that point resident in the Iraqi embassy in London. There was no mention of BNL.

A long discussion regarding end use was finished when Ali Daghir said the parts would be used for air conditioners. He alluded during the discussions to having used this cover in prior transactions. Further, Daghir, an Iraqi national, said, "We don't want to include a single dollar for us. I am an English company, but I am an Iraqi national. If I profit my country, it is for me a profit."

As the meeting adjourned, I was asked by Daghir if CSI would be willing to supply a turnkey capacitor plant in Iraq, substantiating rumors regarding Iraq's goal of independence from Western suppliers.

By coincidence, while I was in London, I received a totally different inquiry from a different front, a company called TMI. The inquiry was for the exact same capacitor that we had been approached for earlier by Euromac. As it turned out, nothing developed from this inquiry because the manager-director of TMI shortly afterwards was involved in a serious automobile accident.

In September, right after I got back from London, I received a fax saying the Iraqis wanted to come to the United States to witness the testing of the capacitors. We also believe they wanted to get a tour through the plant in order to gain background for developing their own plant. The manufacture of the parts was completed on January 3, and on January 11 we received a telex from Al Qaqaa, saying the engineers would not visit us and again asking whether we could come to Baghdad to discuss several different projects they had in mind.

An end user certificate arrived February 6 from the School of Applied Sciences, University of Baghdad, saying the parts were for the sole use of a CO-2 laser system. So we had now gone through the air conditioning cover, and we were now on a CO-2 laser cover. We had gone from the Ministry of Industry now to the Ministry of Higher Education.

On March 13, we were authorized to ship the parts to Euromac in London. A few days earlier, a duplicate set of disabled parts had been shipped to British customs. On March 19, the operational parts left L.A., arriving at Heathrow on the March 20. After clearing British customs, a Euromac employee picked them up and then delivered them to Iraqi Airlines on March 28. An attempt was made to load the parts aboard the Baghdad flight. The shipment was confiscated, and Euromac conspirators were arrested. Their trial is now scheduled for April 22 in London. Omar Latif, the Iraqi airlines station agent, who was believed to be in charge of the Iraqi spy network in England, was immediately expelled.

"Invisible Superpower" is the title of an article published in the June, 1990, issue of *Seapower*. The article continues, "The cold war may indeed be over, but another war has already started. It is a war waged in the shadows, by enemies already unseen and often unknown." "The proliferation of nuclear, chemical, and biological weapons, and of sophisticated guidance systems for these weapons, is creating a number of incipient Third World superpowers capable of conducting military operations on a scale previously reserved for the United States, the Soviet Union, and their closest industrial allies. By the end of this decade, a major conflict involving Brazil, Iraq, Pakistan, South Africa, Taiwan, or Turkey would risk significant, and possibly nuclear, proliferation."

*Scientific American*, August, 1990, "Third World Ballistic Missiles": "The spread of strategic weapons to unstable regions greatly increases the likelihood that they will be used. We cannot reverse the process, and so must learn to manage its consequences." In chilling detail, the article describes the missile programs of 13 Third World countries, including Iraq, Syria, Libya, and Iran. Clearly, the genie is out of the bottle, and the best that can be hoped for is a slowing down of further proliferation of weapons of mass destruction. As the United States is still the world leader in many areas of military high technology, U.S. export control procedures are a vital element in maintaining world peace.

I will make a brief comment on what Dr. Bryen said earlier regarding another incident. In November 1990, while in Germany, I was approached by an American engineer, and he told me how he had actively sought and obtained an order from Iraq after a British company turned down the order for precision electronic parts that could have improved the accuracy of Iraq's ballistic missiles. He had advised representatives of the Department of Commerce and State of the contract. He didn't mention the fact that these devices were going to be used at 350,000 feet, something which is clearly inappropriate for a device for an electric utility. However, he did not point blank hit them on the head and say, Hey, these are going to be in the ballistic missiles, and you guys are not very bright if you approve their sale. This points out the problem with the whole enforcement arrangement. The laws and regulations controlling exports are reasonable; unfortunately, the fine line between stopping illegal exports while promoting legitimate exports makes enforcement very difficult.

I do want to add that, through my involvement with the sting, performance of all U.S. Customs agents and British agents whom I contacted was exemplary. In particular, the determination and

skill of Special Agent Daniel Supnick was vital to the successful conclusion of the sting.

Frequently, businessmen will not ask questions whose answers might block a sale. The division of responsibility among the Customs Service, Commerce, State, and Defense highly complicates the process. At the same time, dual uses of a given product makes it difficult for export control authorities to exercise independent judgement. In many cases, the government cannot afford to have a staff of technical experts qualified to make these judgements. Perhaps a group of retired professionals would be useful, along the lines of the SBA's Score group, who are there to help small businesses. There is also a problem in keeping all U.S. businesses actively exporting informed with U.S. export regulations. While they are thorough, they do not make easy reading. Virtually all industries have trade organizations, such as the EIA and American Electronics Association, who would gladly assist the government by keeping their members informed of current policy, if the government worked with him.

I believe recent events have given the United States an unusual opportunity to promote worldwide arms reduction, which we should not let pass. To be successful, we need a multi-faceted approach aimed at cutting off both the supply and demand for weapons of mass destruction. The basic elements should be completion of our ongoing disarmament negotiations with Russia, promotion of regional agreements to reduce the perceived need by Third World nations for offensive armaments, the development of incentives to reduce the attractiveness of armaments as a vehicle for earning hard currency.

Clearly, as the United States, U.S.S.R., Great Britain, France, and China are the major suppliers of armaments, any meaningful disarmament must have their agreement on a coordinated plan of action. While many Third World countries can barely feed their population, their limited resources are wasted on non-needed armaments. Ballistic missiles are looked upon as status symbols of national manhood in many nations. Others consider their weapons factories to be primary sources of exports to gain hard currencies. A coordinated effort amongst the major powers is necessary to change this unfortunate pattern. The use of foreign aid preferential trade arrangements by major powers could be used as incentives to wean Third World countries from weapons production.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Kowalsky can be found in the appendix.]

The CHAIRMAN. Thank you very much, Mr. Kowalsky.

I will remind that your statements are going to be printed in the record, and as in the case of Mr. Moore, that includes all of your supporting documentation.

Dr. SerVaas.

#### STATEMENT OF DR. BEURT R. SERVAAS

Mr. SERVAAS. Mr. Chairman, it's a pleasure to be before this body this morning.

I have a letter from the chairman which asked me if I would answer today, if possible, eight questions, and those questions concerned the building of a refinery in Iraq to refine scrap glass and copper, questions about the Matrix-Churchill Company, the Banca Nazionale del Lavoro, whether or not we detected any criminal activity in that institution.

He asked me also—because I was, during World War II and for sometime thereafter, a member of the intelligence communities of the United States, you asked me for my opinion on Iraqi intelligence, on why I thought Saddam invaded Kuwait, and what I thought future U.S.-Iraqi relations should be.

I was early taught by the British, beginning in World War II, that in the intelligence business, you first have to determine the reliability of your source; then, of course, follows the analysis and then the evaluation, which this committee is doing.

So, I will just try to put myself in some context for my appearance today.

I am a native of Indianapolis. I have lived there all my life. I am trained as a medical scientist. In my adult life, I have been an industrialist, a publisher, for 30 years a member of the Indianapolis City Council and President since 1975.

Among my various manufacturing entities is a company called Bridgeport Brass. It's called Bridgeport Brass because it was originally started in Bridgeport, Connecticut, but a plant was built, a very large plant, a million square feet, in Indianapolis, and that is the Bridgeport to which I refer in our original contacts with the Iraqis.

This plant is entirely in civilian production, has no military production or capabilities. We employ about 1,000 people there.

In the late winter of 1987 and the early part of 1988, we were contacted at Bridgeport, our plant manager was, by a company called the Matrix-Churchill Company of Cleveland, and they wanted to know if they could come over and visit our plant. They said they had a client who was interested in building a facility in their country.

As many industrialists are prone to do, we wanted to understand better who this client was, the Matrix-Churchill Company, so we got a Dunn and Bradstreet report on that company, and I did include with my written remarks, Mr. Chairman, a copy of that Dunn and Bradstreet report.

That Dunn and Bradstreet report showed that the American subsidiary of Matrix-Churchill was established in 1967, did about \$7 million in business a year, had British subjects as listed officers of the company, and listed as their parent company a company in England, in Birmingham, which was called the TI Group, PLC, established in 1919 with 100 subsidiaries.

It seemed to us to be a responsible English firm. There were no others listed except British subjects. It seemed to us to be a responsible English firm.

They did say—they did come to the plant for a visit, and they said that their client was Iraq, and they said Iraq was interested in building a brass plant in Iraq, didn't give us the exact location.

The war was still on with Iran, and we were not quite sure exactly what this client really wanted, and so, after another visit by

Matrix-Churchill, we agreed to send our chief engineer and a consultant to Iraq to see exactly what it was that the Iraqi client wanted.

You can imagine our surprise when we got there and found that the Iraqis had been building for about 4 years a brass plant, a complete brass plant. They could make sheet and tube and rod and plate, and it was being built for them by the Austrians with some help from Polish engineers.

We couldn't imagine what they wanted with another brass plant, and so, when we came back, our people came back to the United States, there was some considerable doubt in our mind as to what this inquiry was all about.

We thought that it was simply a blind alley, but with the cease-fire that took place in August 1988, we were again contacted by the Matrix-Churchill people to say that what the Iraqis really wanted was a refinery.

Now that peace was coming, they wanted to take several hundred million dollars worth of spent shells, artillery shells, with a lot of copper cable that had been scrapped over the years—Iraq had no such facilities such as this—and together with a lot of other scrap that came from automotive, since they used copper and brass where we in this country use aluminum.

Now, the people who contacted us are from Cleveland. One was an engineer named Mr. Sam Naman, who is an Iraqi, and another Matrix-Churchill contacted us from England, Mr. Al-Habobi, who also was technically informed.

The people we talked to in Coventry in England seemed also to be competent people, engineering-wise. The Matrix-Churchill Company is advertised as an engineering and machine-tool company.

Our engineers did, at the request of Matrix Churchill, design what we thought could be such a facility, that could handle some substantial production through a 5- to 7-year period.

The negotiations took place—were held both in the United States and Iraq in a place called Felugia. It was about 100 kilometers from Baghdad, pretty much in the desert. And the name of the factory manager that we dealt with over there was a Mr. Farouk. He was also an educated engineer. Most of the people we dealt with in Iraq were engineers, construction people.

After we designed this plant and came to some understanding of what it might cost, we entered into a tentative agreement with the Ministry of Industry. Iraq is a Socialist state and productive enterprises are owned by the government.

When August 2 came, we were in the 19th month of a 30-month contract to build the plant. We did not build the factory itself. The factory proper, which was a large building, was built by what would, in our country, be called the Iraqi Army Engineers. The Iraqi Army Engineers has a very peculiar name, called Project 112, an odd name.

And so on August 2, we were in the 19th month of our contract. We had only two men over there on that date. Not much happens in the heat of the Iraqi summer. Temperatures get very hot, so hot you can't touch a piece of metal. So we had just two men there.



The facility was without a roof. We had all of the equipment there. All of the equipment had been shipped and most had arrived by August 2.

Our Iraqi facility had only one purpose, and that was to refine and furnish brass ingots, sort of, I would say, demilitarizing—demilitarizing the Iraqi brass. The Iraqis use an old technique of hardening their brass. They contaminate it with silicon, an old technique that's not really used anymore in the West.

If you want to make more shells, you can just melt down the old shells, but the old shells have no commercial value, because the metal is too hard and can't be machined.

And so what they wanted us to do was to build this refinery to remove silicon, but they had some doubts about whether we could do that. Years ago, Bridgeport had done that, because in the early days of Bridgeport—and this is a very old company—there was silicon contamination, and so we learned how to do it, but since it was an old technology, nobody did it anymore.

We did show the Iraqis in the laboratory that we could do that. They brought some samples over. But they were still skeptical. So we asked them to bring over 5 tons of spent shells that were crushed and compacted. We would fire up a section of one of our old refineries and see if we could refine this 5 tons of scrap; which we did. That scrap, when it was refined, did meet the specifications that the Iraqis wanted, which would come within what's called commercial ASTM and DIN specifications, which means that it could be used anywhere in the world for commercial brass production.

In looking back, I think we can both doubt and confirm that when the Iraq-Iran War was over, there were many people in Iraq that thought there was going to be peace. Certainly a lot of the young Iraq soldiers being demobilized, and getting married, that I saw over there thought there was going to be peace, and so did a lot of other people. They thought there was going to be peace. Everybody said there was going to be peace. Everybody said they were going to rebuild the country, and a lot of people believed it. I believed that, too.

But the questions that you have raised do not allow me to dwell upon this phase of it, except to say that, with one exception, our plan was going ahead on schedule. And that one exception was that, inexplicably, in the spring of 1990, the Ministry of Industry began to falter on their construction, and for another inexplicable reason, they did not—they were not successful in putting the roof on, in getting the struts to put the roof on. They could have ordered them from Belgium, from Italy, from Poland. They said they didn't have the money.

I said, well, this whole thing is being held up; perhaps, and it's not a big expense, we'll just loan you the money, and you give us collateral with ingots that we produce after the factory is finished. They did not accept that offer.

In hindsight, I can be led to believe that maybe a decision was made not to finish this factory on time.

The chairman has asked me about the Banca Nazionale del Lavoro.

You know if you're sitting in Indianapolis and somebody wants you to build a factory in the middle of the desert in a country which you've never visited before, you begin to wonder how you're going to get paid, because the risk of this enterprise was entirely ours.

I noticed in some of the notes that came to me from your committee that there was a thought that we had borrowed some money from Banca Nazionale del Lavoro. Not one penny. We borrowed no money at any time from BNL.

Our factory was entirely financed by us. The risks were ours. We did ask the Central Bank of Iraq to confirm their irrevocable letter of credit with a bank rated B or better, which would be a major bank in a major city of the United States, that had a branch or a bank in the United States. We didn't say what bank. We just said that they had to be B or better, and had to have a bank in the United States.

We were then advised by the Iraqis that that bank would be the Banca Nazionale del Lavoro. We'd never heard of that bank before. We looked into it and we found it was the biggest bank in Italy, really a government bank, that it had two banks in the United States.

We found that many big American companies were doing business with this bank. We were in fact called by this bank from their Atlanta branch and they told us that the Central Bank of Iraq had issued an irrevocable letter of credit and that they were being asked to confirm it. This was in accordance with our contract. They also said that they, the bank, had looked into our records—that they would confirm it.

We sent someone down to Atlanta to look this bank over and the Atlanta bank official told us the business that they were doing with many American companies and many large grain companies. After our investigation of the Italian parent, there seemed to be no question that this was a responsible, respectable bank.

I want to say that during the entire time of this contract, when we submitted invoices for equipment shipped, there was no delay in making our payments. Then one day, like everyone else, we heard, we saw in the newspapers that there had been a defalcation in this bank.

Now I am a Director of a large bank, have been for many years. I know that Directors are not bankers but they do know a lot of bankers and they know bank procedures. We have defalcations in our bank. We have defalcations. We have loan officers that make bad loans, that make loans for kickbacks. They are found out, usually always. They are dismissed, often prosecuted; so it happens in all banks that trusted bank officials go wrong, so it didn't at first concern us. We thought, well, this is a defalcation and it will be cleared up. But as the investigation began to unroll, planeloads of auditors came over from Rome, so we were told, and operations in Banca del Lavoro shut down and nobody got paid. We didn't get paid for several months.

At the end of the auditors investigation we were told by Atlanta that any further invoices we had would have to be cleared by Rome.

Subsequently, Rome decided, after looking at our contract, our letter of credit, that everything was in order, that we had performed exactly as the letter of credit had requested and they continued then, Banca Nazionale del Lavoro continued then to pay our invoices after the investigation had been cleared up and normal business, you might say, was resumed.

Mr. Chairman, as you may recall, there was a great deal of discussion between the government of Iraq and the government of Italy about what their relations were, and were going to be after the investigation and disclosures. That discussion took many months, but even during those discussions, our invoices were paid, and so I do believe, Mr. Chairman, that all parties found our contract to be in order.

Officials here in Washington, particularly in the Department of Commerce, knew exactly what we were doing, all of the equipment we were sending over, even the furnaces which generate a top heat of 1,200 degrees centigrade, far under any level of heat that would be used for military exotic metals; so we feel that although the Banca Nazionale del Lavoro scandal came and went, that in the aftermath, we had normal commercial relations with this BNL and as far as I know always have had.

You ask if we noted any criminal activity in our contact with them. I can assure you, sir, without qualification that at no time did we note any activity that could be even in hindsight be termed criminal or subject to thought in that line.

I think our relations with this bank were—how should I term that?—were business-like at all times and still are.

You asked me briefly to answer the question on Iraqi intelligence. As I say, I was trained by the British. I served for many years in American intelligence during the war and after the war and much of the time in the Far East, and I served for some years as chairman of the Foreign Relations Commission of the American Legion and I am interested in and have always been involved in foreign affairs, so that subject interests me and so does the efforts of nations to inform themselves.

I can say, Mr. Chairman, I have no personal knowledge at all of Iraqi intelligence or how it worked. We were treated well when we were in Iraq. We were dealing with technical people, engineering people. Our people were technical engineering people. I met April Glaspie, the Ambassador, on several occasions. My son Paul, an engineer, also knew Ms. Glaspie and was frequently a visitor at the embassy.

We informed the military attache exactly what we were doing, invited him to come out to see it, but he was unfortunately unable to leave Baghdad. We also dealt with the commercial attache on numerous occasions and were at the embassy on numerous occasions, so the U.S. personnel there were well acquainted with what we were doing, what our objectives were as well all the folks at the Department of Commerce and I'm sure they also checked with Defense before they gave us a clearance.

Last, Mr. Chairman, you asked me two questions.

You wanted to know my opinion as to why Saddam invaded Kuwait. Well, there were reasons, some of which you have heard from panel members and that you have heard, Mr. Chairman, from

many much more qualified to comment than I, on Saddam's personality and his plans for himself and for his country. In simple terms, I think he invaded Iraq—I mean he invaded Kuwait simply because he was broke, completely, irrevocably broke, to the extent he couldn't get credit.

The scandal with Italy really damaged the last credit he had. He couldn't get any credit from anyone. All sources were closed. As a matter of fact, I don't think he could even afford to keep paying his army and when you're a dictator and you can't pay the army and you can't pay your bills you think of something desperate. I think his invasion of Kuwait was a reflex action. I think it had some planning but not much.

I think he just decided to loot it and to stop paying his bills, which he did, and to take the consequences, so I think it was a mindless act. I think it was an impulsive act, a reckless act, a reflex act of a desperate man who thought he had no other way to turn.

Last, Mr. Chairman, you asked me about what I thought of future U.S.-Iraq relations.

In the Middle East, those of us who have looked at their history know that there were many centuries, starting early with the Egyptians then with the Arab legions, then many centuries under the Ottoman Empire. During all this time, there was always a mighty sultan somewhere in the Middle East who would settle all territorial disputes and insurrections.

When the last conquerors of the Middle East, the Europeans, departed after World War II, they left part of the Middle East in the image of some of their colonies and other nations, like Iraq, they, the British, constructed from remnants of the Ottoman Empire. It was not a "real" nation. But there was also not any supreme sultan to put down the insurrections until recently, when Mr. Bush did form a coalition to replace the sultans who used to put these insurrections down, and the rest is history.

I do not believe that peace can be imposed on the Middle East. I do think, however, that a nucleus of the present coalition can be retained in which we could be a part.

That nucleus could be part of a future coalition should a new insurrection or territorial dispute arise, but I do not foresee that peace can be imposed upon the Middle East from the top because there is no universal sultan to cope with trouble in the area.

Mr. Chairman, I realize that I talked longer than the other panelists, but because, Mr. Chairman, you gave me those questions to answer, I did file a 14-page report with you.

First, I knew I could not read such a long report; then I made a shorter summary, but that was also too long, and I ask your forgiveness and indulgence at the length of these ad lib remarks.

[The prepared statement of Beurt R. SerVaas can be found in the appendix.]

The CHAIRMAN. No, I think you did have that. I asked the staff to double check. I think some of those questions kind of slipped by me.

I think that two or three of those actually were not pertinent, but nevertheless, you have addressed them very well and accurately, and we appreciate your testimony. It will be presented as you

gave it to us in written form, and of course, the transcript will follow of the verbal presentation, but thank you very much, Dr. SerVaas. It has been enlightening.

Mr. Abboud, thank you again for cooperating. You were our witness in Houston last June, and we expressed our gratitude then. It was very pertinent testimony.

As you know, we were at the threshold of what turned out to be the full-blown credit crunch, and we were trying to get some grass-roots, and you were there, and you also answered very promptly our request on this occasion. So, we are very grateful to you, and you may proceed as you deem best.

We want to thank you for your testimony, too. We got all of these in time to study them and review them before the hearing.

#### STATEMENT OF A. ROBERT ABOUD

Mr. ABOUD. Thank you very much, Mr. Chairman and members of the committee. I am very pleased to be here today and to be able to respond to this invitation.

I know that the purpose of the inquiry here and the hearing is really to examine the relationship between the Atlanta branch of Banca Nazionale del Lavoro and Iraq, and I cannot contribute directly to that inquiry, because I have no personal knowledge of that relationship.

However, in your April letter to me, you posed several questions regarding U.S.-Iraq commercial and financial relations, and I am honored to share my perspective on that topic with the committee today.

I have been a consistent supporter of President Bush's policies in the Gulf. I have had an opportunity to meet with the President twice since the August invasion. No question, what Saddam Hussein did was wrong, it was criminal, it was unjustifiable.

I do not know why Saddam Hussein invaded Kuwait. Having met with him only once, I would not care to attempt to analyze his reasoning or his motivations.

Suffice it to say that he did miscalculate badly. He underestimated the strength of President Bush. He underestimated the will of the American people, and he underestimated the manner in which political disagreements are put to the side when our troops face enemy forces abroad.

I would like to review with you, if I may, Mr. Chairman, my role in fostering international trade. As an individual and as a banker, I have long felt that international trade contributes to worldwide prosperity and tends to lessen tensions among nations. Over the years, I have traveled to scores of countries in pursuit of this objective.

The committee is concentrating its review today on trade with Iraq, a country with which the U.S. Government reestablished diplomatic relations in 1984.

As has been discussed today, ambassadors were exchanged, official trade credits were provided by the Department of Agriculture through the CCC, by the Export-Import Bank of the United States, but because the United States had not had diplomatic relations

with Iraq for many years, most American businesses did not know the country or have an avenue to research business opportunities.

Although chairing the U.S.-Iraq Business Forum was not a full-time or paid position for me, it was an opportunity to work with a premier group of U.S. companies, large and small, with an interest in developing the trade ties which the U.S. Government had endorsed, which it had initiated through programs, it had initiated through trade fairs, and had the direct encouragement of the U.S. Department of State and the Department of Commerce.

I have only been to Iraq on one occasion since Saddam Hussein became Iraq's leader. I have traveled to Iraq since 1960. I was there for 3 days from June 6 through June 8, 1989, as part of a group of prominent business leaders who are members of the Business Forum.

During that visit, the group had briefings by the U.S. Embassy staff who expressed a strong desire for the U.S. firms represented on the trip to participate in the upcoming trade fair in Baghdad. Our group met with several Cabinet members and bankers, virtually the entire delegation attended all the meetings which were held in conference rooms at the various Ministries, so there was no private discussion of First City business.

We met with President Saddam Hussein on our final evening in Baghdad, in the company of U.S. Ambassador April Glaspie. To my knowledge, Mr. Chairman, that was the first occasion on which the Ambassador met President Saddam Hussein.

I'd like to digress just briefly now from my formal statement to add some additional comment with regard to the meeting with Saddam Hussein. As the spokesman for the Business Forum, I began the meeting by informing President Hussein and his assembled cabinet officials, that the combined sales of the companies in the meeting would exceed \$500 billion, and if incorporated into a separate country, would rank third in the free world after the United States and Japan, in terms of gross national product.

So, these were companies that had very substantial activities on a global basis. Like our earlier meetings with other Iraqi officials, our discussion focused on Iraq's need to rebuild its civilian economy and its financial standing in the world community which had been devastated by 8 years of war with Iran. There was no talk of military requirements, but on developing agricultural and energy resources.

I was direct and blunt with the President, much to the evident discomfort of some of the Iraqi cabinet ministers in attendance. As you know, most people in Iraq don't speak up to the President. I told President Hussein that if Iraq wanted to attract capital to develop its resources, Iraq would have to play by the established rules of international trade.

This meant providing the West with basic financial information regarding the structure of the Iraqi economy, particularly with regard to the requirements of the IMF. President Hussein and I disagreed on this point and many others.

It was an adversarial meeting. It was obvious to me from this exchange that he had a very parochial perspective on international trade. Even more, he had a very parochial perspective on how the

world operated and what the proper conduct might be in the international financial community.

Concerning the BNL scandal, as I mentioned at the outset of my remarks, I cannot add to what the committee already knows. First City had no dealings whatsoever with BNL related to Iraq. I have not met with BNL officials, either in my capacity with the Business Forum, or as Chairman of First City.

None of my staff has met with him. Neither I nor my staff has spoken to BNL-Atlanta or BNL-Rome concerning any BNL loan to Iraq. In fact, the extent of First City's contacts with BNL, directly or indirectly, have been the following:

One; a phone call from Mr. Drugoul's secretary to the effect that Mr. Drugoul was or would be in town and would like to stop by the bank to meet me. He never stopped by and we never heard anything more about it.

Two; a telex from a Jordanian businessman that two Iraqi Government officials would be in the United States and would like to meet bank representatives to discuss, among other things, whether First City would be interested in participating as a lender in the creation of an Iraqi industrial fund with BNL.

No meeting occurred and no bank employee communicated with the Iraqi officials, with BNL employees or with the Jordanian, Wafai Dajani, concerning the concept. I was not a party to either of these two communications.

I understand that BNL was an active user of the U.S. Government's export programs for Iraq. I have no knowledge of whether they made proper use of these programs or not. Like most Americans, including the Congress, I learned through press reports about the billions of dollars in additional loans which BNL made available, illegally, to Iraq, and obviously, such activities must have a chilling effect on the relations between our two countries which was still on friendly terms at that time.

As to the effect on the CCC and Exim Programs, undoubtedly, there has been a high level of scrutiny of the underlying operations. BNL's activities should not, in my judgment, deter the creation of programs designed to improve export opportunities for American farmers and exporters of non-military products.

I dearly hope, Mr. Chairman, that we do not in any way recede from our commitment to developing foreign trade.

First City, during my years as chairman, was dedicated to meeting the trade finance needs of our customers. We worked with correspondent banks around the world to open up trade opportunities for farmers, for small business, for industrial and energy customers.

As you know, Mr. Chairman, international trade is fundamental to the prosperity of Texas. With leading ports in Houston, Galveston, Corpus Christi, as well as the border cities with Mexico, Texas enjoys some \$50 billion a year in international trade out of a gross State product of about \$325 billion. One out of every eight manufacturing jobs comes from exports, and in agricultural exports, we rank first in cotton, second in rice, and third in wheat in the United States. A large Texas bank would naturally finance its customers' trade.

During the late 1980's, Iraq was the leading trading partner of the Port of Houston—the number one trading partner of the Port of Houston—principally as a result of the export of agricultural products and the import of crude oil. We financed the sale of agricultural products to Iraq exclusively through the CCC program. The U.S. Department of Agriculture not only guarantees these exports; it originates the business with the importing country and allocates that by individual products.

The CCC concludes its arrangements on a government-to-government basis. Then the importing country makes its purchase arrangements. Banks come into the picture after these negotiations have been concluded.

First City committed to confirm and negotiate up to \$50 million of these American agricultural exports on the basis that it was good for our customers and that our principal risk would be capped at \$1 million because of CCC's 98 percent guarantee. We felt that this was a prudent, not excessive, and appropriate for our size and the needs of our customers. The money never left the United States. Most of the goods left through the Port of Houston. We paid the American exporter directly.

These transactions were on the basis of confirming commercial letters of credit made in the normal course of business, subject to the CCC guarantee on each and every transaction in advance.

We made no other export loans to Iraq, none through the Exim Bank, none for our own account.

At the request of our domestic energy customers, we issued import letters of credit for their purchases of Iraqi crude. In these transactions, the credit risk is that of the importer, major international oil companies. None was on the books at the time of the invasion.

The Central Bank of Iraq and Rafidain Bank, the commercial bank which issued the agricultural letters of credit, kept short-term deposits with First City and occasionally did foreign exchange transactions in the normal course of business.

In summary, we tried to be responsive to the needs of Texas customers—farmers and agricultural exporters, energy companies—while capping our principal risk at \$1 million to protect our shareholders. The exports that we financed were basically rice and wheat and vegetable seed.

Mr. Chairman, during the last 8 months, we have seen a small country invaded by a hostile aggressor. We have seen great resolve in this country and among the coalition partners. We have enjoyed military success, thanks to the sacrifices of hundreds of thousands of military personnel. I have consistently and publicly advocated the use of force to liberate Kuwait, both at the White House and in public gatherings, and I am delighted that this has now been achieved.

As a veteran, my heart goes out to those who lost loved ones and to those who were injured. Thankfully, the casualties were fewer than anticipated.

Again, let me thank you, Mr. Chairman, for providing me with the opportunity to share my perspective on these issues. I would be happy, obviously, to respond to any questions that you or other members of the committee might have regarding my testimony.



Thank you very much, sir.

The CHAIRMAN. Thank you once again, Mr. Abboud. Mr. Wiley. [The prepared statement of Mr. A. Robert Abboud can be found in the appendix.]

#### STATEMENT OF MARSHALL WILEY

Mr. WILEY. Thank you, Mr. Chairman, for inviting me to testify here today. I will summarize some of the questions that were in your letter of March 29, since we obviously do not have time to go into all of the testimony in detail.

The first question concerned my duties as President of the U.S.-Iraq Business Forum. The Forum, I should explain, became inactive in August after the invasion of Kuwait. Prior to that, it functioned as a trade association of American companies that were interested in the Iraqi market. Our Board of Directors had major corporations represented, such as Westinghouse, Caterpillar, General Motors, Mobil, and Amoco, and it was financed exclusively by dues from the member American companies. There was no Iraqi money anywhere involved in the Forum, nor did we have any Iraqi members. The members were all U.S. chartered companies.

As President, I was responsible for all of the activities of the Forum under the policy guidelines set by the Board. As a practical matter, much of my time was spent in developing the membership and developing the programs which were primarily of an educational nature for our membership to acquaint them with the Iraqi market and how to go about doing business in Iraq.

The next question you asked was a brief historical overview of U.S.-Arab commercial—I'm sorry—U.S.-Iraqi commercial relations.

There was, as you all know, a break in our diplomatic relations with Iraq following the 1967 war, and for a substantial period after that, there was almost no commercial exchange between the United States and Iraq.

There was some crude oil imported into the United States through normal marketing channels that had originated in Iraq, but we had almost no exports to Iraq during that period.

In 1973, we did establish an interests section there in the Belgian Embassy in Baghdad, and among the personnel, we assigned a commercial officer.

The interests section attempted to resume a low level of exports to Iraq, which of course is the duty of all embassies overseas, and they had pretty slow going for a number of reasons.

For one thing, the Iraqis, on their side, all of their imports are controlled by the government, and at that point, the government still had very cool relations with the United States, and their government officials were not anxious to be seen doing business with U.S. companies, although we did do a relatively small amount of business with them during this period.

Then in 1984, we did resume normal diplomatic relations with Iraq, and shortly after that, we began negotiating a commercial agreement with Iraq.

In 1985, I saw the need for some kind of an organization that could serve as a medium between the government on the Iraqi side and the private sector on the U.S. side, neither of which knew

much about the other, but it had become the policy of both governments to expand commercial relations between the two. Since I had had about 25 years of experience with Iraq, both as a diplomat and as a lawyer and as a businessman, I saw an opportunity here to create a nonprofit organization that could function as a medium, as a means of communication and a means of education on both sides, which I saw were quite lacking at that point.

By 1989, our total exports to Iraq had increased to approximately \$1½ billion a year, and a billion dollars of this were agriculture commodities, financed almost exclusively under the CCC credit program.

I might add that, in connection with that program, the Iraqis did keep their payments right up to date until August, as the gentleman from Kansas had mentioned earlier.

At the same time, there was almost no U.S. investment in Iraq, because the Iraqi government had, as a matter of policy, prohibited foreign investment except from other Arab countries.

They began to modify that policy slightly during the last year or two leading up to the invasion of Kuwait, but there still was no significant U.S. investment in Iraq at the time that the invasion of Kuwait took place.

Now, in the Forum's activities, we did sponsor one trade mission to Iraq. We worked closely with the U.S. Embassy in Baghdad in carrying it out. They were very cooperative and helped us arrange our programs.

We had a number of American companies go there who met first with senior government officials, and then we broke down into smaller groups who could contact their counterparts for whatever their particular business or specialty was.

We also took booths in the Iraqi international fair, which is called Baghdad International Fair, for 2 years, which were then sublet to member companies who did not want to pay the cost of a full booth for themselves.

This way, they could have a certain amount of their posters exhibited and the nature of their business indicated to the Iraqis without taking the whole booth.

The relationship with BNL was another question you asked me.

Certainly, the scandal which involved activities on the part of BNL in exceeding their loan quotas, when that was uncovered, when that hit the papers, when the investigations began, and that did have an effect on our trade with Iraq.

For one thing, it had an effect on the U.S. Government. The decision to suspend our CCC credit guarantee program with Iraq in January 1989, was I think, largely due to the publicity surrounding the BNL scandal.

That called the attention of the Congress and other members of the Government to the fact that there must been something going on here that was not fully above board and began a further investigation of the CCC program, which did end up in a suspension of the program in January.

I personally met with BNL employees twice, once in my capacity as a lawyer when I was representing a client who was selling lumber to Iraq and whose letters of credit were arranged through

the BNL. I met with the Vice President in the company of the client.

The second time was when Chris Drogoul, the President of BNL, called at my office in Washington. This was after he was under investigation, and I think the purpose of his visit was to see if he thought that I might be of assistance to him as a lawyer in defending him in this investigation. Apparently, he concluded to the contrary, because I never heard from him again after he left my office, and that was the last contact I've had with Mr. Drogoul.

As far as the Embassy in Iraq is concerned, the last two ambassadors to Iraq have been old colleagues and personal friends of mine. I saw them every time I went back there, which was about once per year, I would say, since 1985. I knew personally many of the local employees in the Embassy, whom I did see on my trips back there.

Our business dealings were pretty much confined to the Commercial Attache and to the Agricultural Attache, who was responsible for the CCC credit arrangements.

The Embassy, until August 1989, was certainly promoting U.S. trade with Iraq, which is part of their mandated function, in the absence of any specific instructions to the contrary, and they, I think, were attempting to do that.

I am not familiar with what they were reporting about the arms build-up. I'm sure that was all in classified channels, and I did not have any opportunity to see that.

I do believe that they did their best to promote the agricultural sales and the non-military sales, of which I did have some familiarity.

The Eximbank limited its line of credit to \$100 million and limited it to short-term credits of 6 months or 1 year. This was probably not enough to have a major impact on our trade with Iraq, which was then up to \$1.5 billion per year, and I am not aware that the BNL scandal did have an impact on the Exim programs, although I'm certain it was one thing that was taken into consideration in their constant review of the program and in evaluating the credit risk involved in Iraq.

The CCC credit guarantees are obviously very important in the agricultural trade. Almost all of the agricultural commodity sales were financed through the CCC credit guarantee program. So when that was terminated, it did impact very heavily on our agricultural trade, and following January 1989 when this program was suspended, I think our agricultural trade did drop off very substantially.

Then you asked me about what my reaction was when I learned that the Iraqi Government had used poison gas on the Kurds, and how did this issue affect U.S.-Iraqi commercial relations?

Well, like everybody else, I found the use of poison gas against civilian populations abhorrent. The extent to which this affected trade with Iraq, I don't really know, although there may well have been some businessmen who decided at that point that they would concentrate their efforts elsewhere because of the fact that they had used poison gas and the publicity that this engendered, but I am not specifically aware of any case where they did modify their efforts to Iraq because of that.

Then you asked me my personal opinion on why Saddam Hussein invaded Kuwait, and did I believe that the Iraqi financial difficulties played a large role in his decision to invade?

I think that his decision was motivated primarily by economic reasons and perhaps by a bit of paranoia. In the Middle East, paranoia seems to be fairly common. Conspiracy theories are frequently evoked as justifications for actions that are taking place, and I think Saddam Hussein was very much susceptible to conspiracy theories.

When he came out of the war with Iran, he had a very serious debt problem, mainly in short-term debt that he had accrued in the course of the 8-year war. He did not listen to the advice of international financial experts on how he could better manage this debt through rescheduling and stretching out the debt, which would have lowered the short-term payments burden.

Instead, he chose to believe that the international community, and particularly the other Arab states, owed him something as a result of this war, and that we shouldn't be so fussy about if Iraq missed payments on letters of credit. He felt strongly that Kuwait, Saudi Arabia, and the other Arab Emirates owed him a considerable amount for the war. He really felt that he was defending them as well as Iraq in preventing the Iranians from gaining more influence on that side of the Gulf.

And I think he was particularly disappointed in Kuwait, who at that point was exceeding its OPEC quota by about 50 percent. They were also refusing his request to cancel the war debt and to extend him more credit. He was unhappy at the rate they were pumping out of the North Rumaila oil field, which crossed the border between Iraq and Kuwait, and he generally felt that the Kuwaitis were not responding to what he viewed as reasonable requests to rectify these situations, to help him with the very serious financial squeeze that he was in.

This financial squeeze, incidentally, was not only a result of the war. It really hit Iraq very hard in the mid-1980's when the price of oil dropped sharply when the Saudis began increasing their production in 1985 to drive down the price. He had counted on a much higher price than he was getting. So he did not look kindly upon the Saudis and the Kuwaitis and the other Arab States who had, he thought, conspired to drive down the price of oil, which was hurting the Iraqi economy very seriously at that point.

I think he probably also was looking closely at signals from the United States of our attitude toward Iraq and I think the decision to suspend the CCC credit program in January probably gave him the idea that we did have some hostile intent towards Iraq because he had given us favored treatment. He was not paying many of his international creditors but he was very careful to keep his payments up to date to the United States and on the CCC credit program.

I think that he probably took that as an intention, a hostile intention on the part of the United States.

Putting these things together I think he felt that there was an attempt out there among the great powers to damage the Iraqi economy for reasons of hostility towards his country.

Just because this opinion cannot be substantiated in fact, doesn't mean that he didn't have it. I think that he probably did believe there was a conspiracy and this was one of the reasons that he made the snap decision that he did to invade Kuwait and to try to alleviate his economic situation through the plunder of that country.

You asked me what other thoughts I might have regarding US-Iraqi relations in light of the BNL scandal and the aftermath of it.

I would only say that I think we should keep all of these events in perspective. Iraq is going to be, some day, an important country in the Middle East.

It has oil reserves second only to Saudi Arabia in that part of the world.

It has the natural resources for a well-rounded development in industry and in agriculture.

It has a relatively good transportation infrastructure in place.

It has educational facilities, medical facilities in place, at least it did before the war began, that were much better than other countries' in that part of the world.

It has a relatively well-educated population, a good manpower base upon which to develop.

By virtue of these economic resources it's probably going to continue to be an important player in that part of the world and a country that, when and if we can get past our current political problems, could continue to be an important trading partner for the United States.

We, I think, given the international competitiveness we are facing these days, should keep this in mind in formulating our policies towards Iraq. Regardless of what we think of Saddam Hussein and his actions, another day will undoubtedly come when hopefully we'll have a more reasonable government in Iraq and at that point our relationship with Iraq is going to continue to be an important relationship for the United States.

Thank you, Mr. Chairman.

[The prepared statement of Marshall Wiley can be found in the appendix.]

The CHAIRMAN. Thank you very much, Mr. Wiley, for an excellent statement and summing up.

Again, I express on behalf of the committee our profound appreciation and gratitude to each and every one of you, of the witnesses. Your testimony has been invaluable.

Well, I think you are right, Mr. Wiley, no matter what happens that part of the world is going to continue to be inhabited mostly by Arabic people and culture and no matter what we think we can do, the size of the destruction we have really wreaked in that part of the world, but I can see the confusion that would arise in, say, a combatant nation like Iraq coming out of a prolonged and bloody war, mean war. When we had the scandal of the Tow missiles that we provided Iran, you know, how many Iraqis did those Tow missiles kill?

Then our own experience in the Gulf with our Navy, the damage and the lives that were lost on our ship, the U.S.S. *Stark*, by a missile that happened to be an Iraqi missile. But it was a Silkworm provided by China because the arrangement that our leaders made

with the Chinese when our President then and our Secretary of Defense then visited China was to provide the licenses for the construction of that missile, the Silkworm, and China entered the arms market and it comes back to what I think Mr. Kowalsky stressed in his recommendation.

I agree with you 100 percent, Mr. Kowalsky, that it's imperative that some effort be made. Of course, now it has to be on that same level, U.N. level, on arms control, because we haven't learned anything.

Even now the arms race rages on and we have got countries from everywhere, from China, as I said, to almost every other country you can point a finger at that produces any of the materials and goods that would be needed.

I do think that is the big issue. I don't know—I mean sometimes covering this I despair of us even doing anything domestically, so I hate to say I am not so optimistic but I do think you have touched on the main challenge at this point if we care to learn anything and I don't know. I think some of this, World War I, World War II, a lot of Hitler's financing and trading was done by our largest corporations until you had the outbreak of the war and so I don't know to what extent—however, it is imperative that those of us on this committee realize that we have first call on the main line of responsibility as far as the regulatory oversight of the foreign, commercial and banking and financial interests doing business in the United States.

There is really no reciprocal—because it's very difficult to compare our systems and relate and then have the comity that would reflect some viable system, but we have to.

Mr. Bryen, I think your testimony was also most valuable for us to understand the scope, the scale, and the dimensions of the problem confronting us from the statutory level. It's not a simplistic problem but I do think it isn't perceived with the sense of urgency that I would hope would be there.

Then with these other things happening and the condition of the insurance funds and, you know, we have a full plate here.

As you can best recall, what role do you recall the State Department playing in allowing sophisticated technology to be exported to Iraq and other countries for military purposes?

For instance, I speak of the State Department, because the State Department is one of our departments that has its staffs, its agents, its diplomats in every one of these countries, and they had them right there in Baghdad.

Do you think, as a corollary to the first question, that the State Department, with its embassy in Baghdad, should have known of some of Iraq's planned use of these materials?

Mr. BRYEN. Well, Mr. Chairman, I think, first of all, that, certainly, they knew, and I have been listening to the explanations given about why Saddam Hussein invaded Kuwait, and I do not know the answer to that, frankly, but I do know that he was conducting a systematic military buildup, a huge, vast operation.

We were well aware of that, and when you are starting to build nuclear weapons and chemical weapons—Seth Carus told you that it became the number one chemical weapons producer in the world, largely thanks to the Germans, but when you see that going

on, it has a purpose, and it seems to me it was an aggressive purpose.

Whether he was broke and his timetable in respect to Kuwait was advanced thereby, it could well be, but I think the fact of the matter is that this was an Iraq that was aggressive, that was building to be aggressive, and that he saw himself at least as a major regional power in that area. We knew about it.

In respect to exports, the State Department had two attitudes, because it had different people doing different things. The people in the licensing, economic areas of the State Department, the desk officers, for the most part, urged approval of licenses.

I do not ever recall any of those officials opposing any license request, and in many cases, they were aggressively promoting these sales, even though we would warn them, from time to time, that there was serious risks, and that went as high, in my experience, as assistant secretary level, Assistant Secretary for Near East Affairs.

The proliferation people in the State Department, people concerned about nuclear proliferation, on the other hand, took, I think, a positive role and tried their best to do what they could to prevent Iraq from getting some of this technology that could be used for nuclear programs.

In the main, they focused on what some of the allied countries were doing, especially the Germans, and there was a lot of activity from 1985 on aimed at convincing our allies not to export some of this technology that could be used for chemical, nuclear, and other programs.

The problem was that our allies knew that we had a two-faced policy. On the one hand, we were saying you should not do this, and on the other hand, we were doing it, and that sort of thing was extraordinarily embarrassing.

I remember sitting in a meeting with our counterparts from Italy.

Italy was involved in—an Italian company—let me be careful here—called SNIA, part of FIAT, was involved in the Condor missile program that involved Iraq; legally, I might add, involved in it, and we were trying to convince them this is a bad idea, that the Condor was a long-range ballistic missile, and it was not in anyone's interest that it be built, and they said, "well, but we have here copies of Commerce Department licenses for machines to mix the fuel for these rockets, that were approved".

"So, what are you talking about? On the one hand, you are saying no; on the other hand, you are saying yes; and we do not know what you mean".

So, we got into that kind of conundrum, and so, the result was that our policy was a failure, I think, and it was a failure because it was at cross purposes.

The CHAIRMAN. Thank you very much.

My time has expired.

Mr. Leach.

Mr. LEACH. Thank you, Mr. Chairman.

I just have several questions for Mr. Abboud and Mr. Wiley.

First, Mr. Abboud, I must say that, as this whole confrontation built up, as you know far better than anyone on this panel, there

was a lot of division in the American community that had ties to the Middle East. In this regard, your support for the President and his policy was very forthright and very appreciated.

I would just like to ask, as a banker associated with international lending, from the perspective of regulation, do banks have to report to regulators their involvement in CCC-type programs?

What do regulators require? How do they note these kinds of things in terms of bank exams?

Mr. ABBOUD. Congressman, the answer is yes, indeed, they do.

As you know, in most banks there is a full-scale exam once a year, and in that, all of the assets are classified, so that, as regulators, whether it is under the jurisdiction of the Comptroller of the Currency for a national bank or whether it be the FDIC or whether it be a State bank and State regulatory authorities, they would go through the balance sheet on the asset side.

Therefore, when you see government-guaranteed credits, particularly now, under the risk-based capital requirements, because they have less of a capital component than a full-scale loan, those are reviewed, and therefore, all banks have to give the exposure, by country and by classification, and those are examined in the normal course.

Mr. LEACH. Do you think that U.S. and Italian bank regulatory agencies would or should have had full access to all of the information about BNLs exposure to the CCC program or vice versa?

Mr. ABBOUD. Well, it's a little hard for me to comment on that, Congressman, because it would seem to me that if all the records were out there and in the normal course, they would have to have it. I mean, it would just jump out at you.

Now, I understood from some of the newspaper articles that the records weren't being kept in the normal course. Let me just say this about Iraq. I think, in a couple of facets, first of all, at the time that we went over there, their total debt was about \$70 billion, but I think you have to look at that in laminations.

About \$35 billion of it was war debt which typically, I think, under the normal course, you would think would be extended out at, say, 35 years at a 2 percent rate of interest.

Mr. LEACH. Excuse me. I don't accept that, but go ahead.

Mr. ABBOUD. OK, I mean it—

Mr. LEACH. I mean, quite seriously. I don't know what typicality you're referring to.

Mr. ABBOUD. I don't know; maybe "typically," was the wrong word. I mean, it would seem to me that if you were looking at the structure of the country and you were looking at \$70 billion, you'd say \$35 billion is war debt which has to be viewed in one capacity.

It was another \$15 or \$20 billion which were basically Paris Club type of credits which were country-to-country, mostly France, Germany, and Japan. Then there were commercial credits for about another \$20, and this was a country which was producing about 3 million barrels a day, which created a cashflow, just on oil revenue, in excess of \$20 billion.

Now, they had agricultural exports and sulfur exports as well, so it's a very rich country with potentially—it if hadn't been totally loused up managerially, which is exactly what happened, which was what I told the President—if it hadn't been loused up, this was



a country which, before the war with Iran, had no debt whatsoever, was totally out of debt because its cashflow was able to sustain it.

Now, the real question was; how to encourage those units within Iraq that really wanted to proceed with an openness and to disassemble the existing regime and to create kind of open trade and investment so that they could interact with the outside?

I think that's what the benefit of trade does. Trade is there to promote the freedom. I think that the direct answer to your question is; in any bank, the records are right there, and if they're being maintained properly, they're available to the regulatory community.

Mr. LEACH. OK, let me just continue this with Mr. Wiley for a second. There have been press reports that Saddam Hussein has substantial sums of money hoarded outside the country for his own personal benefit, usually in sophisticated circles that deal with countries of this nature.

That type of information has come to be widely known, in this case. Is it your view that he probably does have that sort of resource available to him?

Mr. WILEY. Well, I have no factual information. I think dictatorships all over the world quite frequently have a reserve put away in Swiss banks.

Mr. LEACH. There's a difference in quantity. I mean, it's a million dollars versus a billion dollars versus 10 billion dollars.

Mr. WILEY. The press accounts that I saw confused Saddam Hussein's personal funds with Government of Iraq money. I'm not sure what they were referring to. At one point, they seemed to be talking about Saddam Hussein's funds, and at another point, they were talking about Iraqi Government money.

I don't know, really, what was behind the press accounts that gave this. I'm certain that there was an attempt to hide some of the Iraqi Government money, right before the invasion in August, because they probably realized that this would be at risk to be frozen. So, some of it could well have been shifted into nominee accounts or something of this kind.

Mr. LEACH. Did you know about this before the invasion?

Mr. WILEY. No, not at all. Had he asked me about the invasion, I certainly would have advised against it, yes.

Mr. LEACH. What I mean is, if you had known, would you have informed our government? That's kind of a precursor to—

Mr. WILEY. No, I knew nothing about his bank accounts, no.

Mr. LEACH. One final comment. There has been a press report that the primary reason, or a significant reason the U.S. Government cut off the CCC credits was the allegation that about 10 percent of the money was being used as kickbacks. Did you have any knowledge of that, Mr. Wiley?

Mr. WILEY. I had no knowledge of any kickbacks. The Government of Iraq sometimes asked suppliers to make gifts to the Government of Iraq, not as kickbacks to individual people for their personal use, but there was no legal obligation for the supplier to do this. He didn't have to make the gift, but by making the gift, he assured that he would be at least on the list the next time this kind of supply contract came up.

I know they did have that practice which they used for a while.

Mr. LEACH. So, basically, from our perspective, we were encouraging trade with a country that had \$70 billion debt, a policy of kickbacks as gifts, and a fair amount of money outside the country?

Mr. WILEY. Yes.

Mr. LEACH. I just think it's a picture of a government that seemed to be bent on buying the kind of things Dr. Bryen says were of an aggressive nature. It's just not a pretty situation.

Mr. WILEY. Well, the Iraqi market was always considered by U.S. businessmen to be one of the least corrupt in that part of the world. The necessity of paying kickbacks to government officials just didn't exist there, as far as I know.

That was because they were very brutal with any government official whom they caught taking a kickback. They executed several on the spot when they found this out.

So, on the working level, doing business in Iraq was probably a lot cleaner than anywhere else in the Middle East. Now as far as government funds being hidden overseas, I'm not aware that any great amounts were hidden. They didn't have that large an amount.

Actually, they were very short on cash from the time of the end of the war till the time of the invasion. So, they didn't really have any substantial amounts to hide, and then we—and the rest of the countries of the world—froze almost all of what they did have, although there may have been some hidden away under false names that we don't know about.

Mr. LEACH. I appreciate that. Thank you, Mr. Wiley.

The CHAIRMAN. Let's see, Mr. Cox left, and Mr. Slattery—Ms. Waters came after. Mr. Slattery.

Mr. SLATTERY. Thank you, Mr. Chairman.

First let me thank the panelists for their testimony today. I found your comments really fascinating on the one hand, and on the other hand, some of the comments appalling.

And one of the things that I would like to explore a little further is the comments of Dr. Bryen. I appreciate the position that you gentlemen, Dr. SerVaas and Mr. Abboud—is that the way you pronounce it?

Mr. ABOUD. Yes, sir.

Mr. SLATTERY. And Mr. Wiley found yourselves in. I mean, our government had a policy of encouraging some degree of trade with Iraq. You were in the business of trying to work with your customers who sought to take advantage of perfectly legitimate and legal trading opportunities. And I share the view expressed by one of the panelists that international trade has historically done much to enhance international relations and peace in the world, and I can understand why we would want to pursue that sort of policy.

But I also believe there is a very legitimate question that we as a society and a country have to address, and that is this question of how can we protect our taxpayers and our citizens' investment in the enormously expensive high technology equipment that we have developed and that the world saw demonstrated in this most recent war?

And I think Mr. Bryen's testimony is incredible. And I'm just going to read back some of what this man has said. And we're not

hearing from someone who is some left wing nut, OK. I mean, we're hearing from somebody who was Deputy Under Secretary of Defense during the Reagan Administration, for goodness sakes, and served there for a number of years. And, you know, some of what you've told this committee today, Mr. Bryen, is incredible, and I just want to reemphasize some of what you said.

One of the comments, and I think you mentioned this in your oral testimony, you said that there is a complete lack of workable checks and balances in the system.

Mr. BRYEN. Yes.

Mr. SLATTERY. "That is why the State Department and the Commerce Department could with impunity release technology to Iraq." I'm reading from your written testimony that you have submitted to the committee.

"If we in the Defense Department complain too much, they simply would issue export permits and not tell us, or they would threaten us with 12(c) violations. This type of intimidation is very effective, and it was used and continues to be used with effect."

First of all, for us lay people over here that aren't familiar with a lot of these regulations, what is a 12(c) violation?

Mr. BRYEN. It's interesting. There is a part of the Export Administration Act, which is called section 12(c), that in effect directs the Commerce Department to restrict the distribution of information about export licenses in order to protect the proprietary information of the companies who are making application, which is a reasonable provision as it was conceived by the Congress.

Unfortunately, it's been twisted around, so that if the Defense Department or any other official in the government wants to complain in any public way about a licensing action, he will be threatened, and he is threatened with revealing information that is protected under this provision of law, and the Commerce Department has written innumerable letters of complaint to the Secretary of Defense, among others, complaining about public officials who attempted to raise alarm bells.

Even most recently on the furnace case, this CONSARC furnace case that took place in July of this last year, the Commerce Department—a senior Commerce Department official—I'll leave it at that; I know who it was—telephoned the Under Secretary Defense for Policy, complaining that one of the investigators leaked information that was a 12(c) violation, and they regarded this as a major violation. And basically they use it as a way of covering up unseemly regulatory activity, which is the only way I know how to characterize what was going on in respect to some of these licenses.

Mr. SLATTERY. Well, I appreciate your comment there. And let me just further read back some of the testimony that you have offered today.

You say that "strategic exports cannot be regulated by the Commerce Department and the State Department acting alone. The national security agencies have to play a concrete part. Right now today, the Defense Department is excluded from even knowing about 90 percent of what is exported from the United States."

You go and say: "There is a complete lack of workable checks and balances in the system."

Then you say: "There is a complete policy fog in regard to export controls."

Then you say: "Rather than see some improvement now, there is every reason to believe that the situation is about to deteriorate even more. The United States is backing a major liberalization in COCOM, which is the organization that regulates East-West high technology trade. A huge array of high technology, advanced microprocessors, high-speed computers, precision machine tools, night vision equipment, sophisticated analytical instruments, advanced radar and air traffic computers will be released from effective multinational control."

I guess my concern is that a lot of this equipment is being developed with taxpayers' money by the Pentagon, and then a lot of this is subsequently converted for civilian trade purposes, and, of course, let's face it, people are buying this equipment in many instances for the sole purpose of reselling it to other entities in the world, other countries in the world who otherwise would not be able to acquire it.

And it seems to me that we are truly in a situation where all of the investment of the 1980's in terms of enhancing our military capability is going to very quickly be, in effect, sold to the very people and very countries around the world that we spent all this money to try and defend ourselves against.

Mr. BRYEN. Absolutely.

Mr. SLATTERY. Is that a correct—

Mr. BRYEN. You've got it right. Take the night vision as a simple example.

Mr. SLATTERY. I mean, what in the world are we selling night vision technology for? Why do people need night vision in Eastern Germany or in Czechoslovakia?

Mr. BRYEN. Well, we are proposing to sell it to the Soviet Union.

Mr. SLATTERY. Pardon me?

Mr. BRYEN. We're proposing to sell it to the Soviet Union.

The CHAIRMAN. The time of the gentleman has expired.

Mr. SLATTERY. Would the chairman, in light of the fact that there are not very many other members here, would the chairman graciously consent to give me a few more minutes?

The CHAIRMAN. Well, if the gentleman asks unanimous consent to proceed—

Mr. SLATTERY. I ask for unanimous consent.

The CHAIRMAN. Certainly. Without objection, so ordered.

Mr. SLATTERY. Thank you very much, Mr. Chairman, and I appreciate the indulgence of my colleague from California.

It just seems to me that—the other point that was made here today that is really appalling is the fact that, and one of you have made this observation, is that when—was it you, Mr. Bryen, that indicated that when you trying to deal with European countries, in pointing out to them that they were selling high technology equipment to Iraq, and this equipment was being immediately converted to strategic weapons development purposes, you were told that, look, your own Commerce Department is selling equipment that they're using also. Scram off the porch. How can you have the audacity to challenge us when you're, in fact, doing exactly what you're attempting to condemn us of doing?

Mr. BRYEN. That is exactly right.

Mr. SLATTERY. It just seems to me that this is a very, very serious problem that we are talking about. If this country—if the United States of America doesn't move quickly to correct this, then all of the people that have died in this war and all the enormous costs that we have borne will have all been in vain.

Your testimony today, Mr. Bryen, and again, I emphasize that you are not some left wing nut, you are a former Reagan appointee, I assume, in the Department of Defense, is truly shocking.

I hope that some people downtown in the White House are listening. Because I can tell you this with absolute certainty, that—that people across this country are angry at the prospect of this high technology equipment that they have paid dearly through the nose for, for the last 10 years, is now going to be sold to the Soviet Union, sold to China. Little effort is being made to really prevent the proliferation of this equipment around the world.

It is a sad, sad reality, that we have got to accept some responsibility for the fact that the Europeans and people in this country helped create the monster that we had to deal with here in the last few months.

The CHAIRMAN. The time of the gentleman has again expired.

Mr. SLATTERY. Thank you, again, for your testimony today.

The CHAIRMAN. Ms. Waters.

Ms. WATERS. Mr. Chairman and members, I, too, would like to join with my colleagues in thanking the panel for the most revealing testimony and information that they have shared with us. I—I guess I differ from my colleague, Mr. Slattery; I am not shocked. I guess I have known.

I asked the gentleman who was here testifying, from the Treasury Department, in a rather facetious way, about our inability to know, and Mr. Bryen confirmed that my approach and my question, indeed, made some sense, because it is absolutely absurd to believe that we could not have systems to detect or know what is going on.

In addition to that, I mean, even with the most sophisticated systems, it does not matter if we have a policy that goes in the opposite direction. It is clear from this testimony here today that that was what was going on. I do not even think it was a foggy policy.

I think it was a policy that was one of cooperation and assistance to Kuwait, despite the information that was readily available or known about their build up. So, I am not surprised that we find ourselves in a situation where R&D money and other resources, taxpayers of this country, is being used to support efforts to export sophisticated technology, and so forth, to countries who may be doing whatever they want to do with it, you're right, when you export some of this stuff.

I do not think that anyone could be so naive as to believe that they just simply wanted to look at it or to have it around. People have intentions. That is quite obvious to me.

Let me just say that Mr. Moore's testimony, part of it, was such that he identified the complication that we may be confronted with in putting together sophisticated systems to detect what is being exported and why; that some of the equipment is generic and it could be used for any number of things.

Certainly, with our knowledge of computers, we could put together systems where patterns would develop, and we could see the level of activity and the amount of activity that was being generated, that would help lead us to some conclusions.

I am sitting here with a panel where we are talking about Kuwait, and we are talking about what has happened in the past and, perhaps, what should be happening in the future.

It was just a few weeks ago that we heard that, in Panama, we have been exporting materials that could only be materials used to manufacture drugs, and in huge amounts, unusually large amounts. So, I mean, today, we are talking about Kuwait and we are talking about sophisticated technology and Iraq, rather. Yesterday, it was Panama and drugs, and it goes on and on and on.

I do not know how much people know about anything out there, but eventually, I think people will raise questions about how we operate and what our policies are. I do not really have any questions. I am just appreciative for the information that we have received.

I would agree with Dr. SerVaas, I think, and Mr. Abboud, that trade is and should be about the business of promoting freedom; but when I hear that we have business persons who do not even raise questions about the use of our agricultural products to develop chemical warfare and would want to proceed with a government that kills thousands and perhaps are doing it even today, as we sit here, after having gone through all of this.

We have enough information to know that Saddam may have used chemical warfare again on the Kurds, then I do not know how we can conclude that trade is always promoting freedom. It looks to me as if we have been involved in a business where trade might have been promoting death and continues to do so.

Thank you all for your presentations here today. Hopefully, the revelations of today will help us to be a more principled country, with better policy, and certainly develop systems that will help us to unveil the accumulation of weaponry and other kinds of things that will be used to destroy.

Thank you.

The CHAIRMAN. Thank you. Mr. Vento.

Mr. VENTO. Mr. Abboud, you know, I am sitting here, I have got a page of material from the State Department, or from the research staff that testified to the fact that there have been a lot of loans made under this BNL credit facility. In fact, out of the 15 pages, 5 pages are American companies. Five pages, so we are talking in this credit. Now, not all of this credit was extended, I understand.

As Mr. SerVaas mentioned, they had this contract, about which we might want to raise some questions. It points out here, on page 5 of your testimony, that you were extending credit. I mean, you're a banker. What is the creditworthiness of Iraq during this particular time? Do you have any idea or notion, during this sequence of events, that all of a sudden there had been a large infusion of credit? I mean, where was Iraq getting this money from? Didn't we have any idea, when they were dealing with all of these American companies?

You obviously point out that you had—you were obviously using the CCC credit facility; is that correct, Mr. Abboud?

Mr. ABOUD. Yes, sir. Congressman, let me say that, in my judgment, Iraq was not creditworthy. That was the point that we were trying to make to President Saddam Hussein, that he had so mismanaged his economy and his position in the world community, that nobody would lend him a dime.

Mr. VENTO. Well, you were lending money here; but you said you were serving the industrial and energy customers of Texas.

Mr. ABOUD. No, no. We—

Mr. VENTO. You were lending money to your customers and then they personally were extending credit?

Mr. ABOUD. No. We were doing two things. We had lent, under the CCC Program, where basically the U.S. Government had a compact to make credit available to countries to buy American agricultural goods.

Once they negotiate that agreement with a country, and that goes Government to Government, the United States with Iraq, they set up a facility, and then they allocate that facility to individual banks, in order to service exporters, farmers, who were sending rice and wheat and, in our case, vegetable seed, rice and what.

Mr. VENTO. That was solely the type of credit that you were extending?

Mr. ABOUD. That was solely the type of credit that we were extending.

Mr. VENTO. I misunderstood your statement.

Mr. ABOUD. Yes. Now, there was one other thing that I mentioned in there, and that was that we were extending letters of credit to large international oil companies who were importing crude. That credit was the credit of the oil companies who were bringing in the crude, not of Iraq.

Mr. VENTO. To Texas?

Mr. ABOUD. To Texas. Yes, sir.

Mr. VENTO. Well, do you think it was general knowledge that Iraq had this situation with regards to credit?

Obviously CCC credit looks beyond that at the soft window, as it were, but do you think there was general knowledge in the banking community of that?

Mr. ABOUD. Oh, I think all over the world, Congressman, that people knew that Iraq was not creditworthy, which was the reason why they had to have a total restructuring and recredit—refinancing of their situation.

Mr. VENTO. Thank you. Let me just—we don't have a lot of time here and I know it's been a long hearing and I appreciate the patience of the panel and the members, but Mr. SerVaas, how did you think Iraq was going to pay for what they were purchasing?

Here I note you were trying to sell them a \$115 million system but they finally apparently, according to the document I have, agreed to a \$32 million contract. Is that correct?

Mr. SERVAAS. Well, the only way you can tell whether or not the country has credit is if there's some bank, American bank, in this case an Italian bank with an American subsidiary, which would confirm it.

Mr. VENTO. What bank—you were dealing with this Atlanta branch, is that correct? Who were you dealing with? Who do you think you were dealing with?

Mr. SERVAAS. Well, we had no idea who the Central Bank of Iraq would use. According to our contract, they had to have their letter of credit confirmed by a bank which is known as B or better with a branch or a bank in the United States and we had no idea——

Mr. VENTO. Did they fulfill that commitment?

Mr. SERVAAS. I beg your pardon?

Mr. VENTO. And they fulfilled that particular requirement that they satisfy you with regards that you were sending people there, you were spending money on engineering, you're obviously ordering materials to build this brass reprocessing facility, is that correct?

Mr. SERVAAS. All of the money that was spent on the precontract engineering was simply an investment by us.

In other words, there was no reimbursement for that.

Mr. VENTO. You made no assessment as to whether they had fulfilled the credit requirements according to the contract that you had with them?

You had a contract? Did you have a contract——

Mr. SERVAAS. We had a contract with the Minister of Industry.

Mr. VENTO. What was the amount of the contract?

Mr. SERVAAS. It was around \$40 million.

Mr. VENTO. \$40 million. So you didn't, in other words—they had not satisfied that particular issue, you said, with B quality type of credit?

Mr. SERVAAS. Yes. Yes, they did, because we were called by an officer of BNL to advise us that they had received in Atlanta a letter of credit from Central Bank of Iraq.

Mr. VENTO. A telephone call would be sufficient?

Mr. SERVAAS. A telephone—well, just to notify us that they had. They had been asked to confirm it.

Mr. VENTO. That would be sufficient, then?

Mr. SERVAAS. Yes, that was the first indication we had of which bank this was.

Mr. VENTO. Well, it just sounds to me like, you know, I listened to the debate here between Mr. Bryen and others. My time has already expired but I mean the U.S. has gone from selling something less than \$10 billion worth of foreign arms in the 1970's—I remember when Carter was trying to put a cap on it about \$9 billion. The other day, I picked up the paper and it said that we were really not doing very well—we had only sold \$45 billion last year, which is exponential growth. Then we wonder when all of these people get all of these arms why they start attacking one another.

I mean what the hell do you think they are going to do with them? You know, it's pretty clear to me what they are going to do with them. Clearly I have heard the debate between the Commerce Department and the Defense Department with regards to limits on who is stifling trade.

Did any of the agreements or arrangements here involve any type of offsets, for instance, Mr. SerVaas——

Mr. SERVAAS. Of what?

Mr. VENTO. Offsets? In other words building a plant there. It actually is an offset because you are really transferring the technology, aren't you?



Mr. SERVAAS. Well, this was what you might call an obsolete technology.

Mr. VENTO. Well, I know, but that's what you were doing.

Mr. SERVAAS. Yes.

Mr. VENTO. You were saying we're going to do this——

Mr. SERVAAS. In fact, we had to——

Mr. VENTO. Which is another concern that I've had with just regards to getting that reported and of course invariably they focus on, guess what, electronics and aeronautics offsets? Well, guess what two areas we lead the world in? That's the type of technology we have and of course now we read that we have transferred that to the Japanese, which will now be building their own aircraft, so the type of benefit we might get is gone.

You know, over and over again we keep going through this and I think we have a lot of ourselves to blame in terms of what happened with regards to Saddam Hussein in terms of he didn't come up out of the ground like a mushroom.

Not only did we do the financing but we provided a lot of the technology, at least one-third of it, according to this series of credit line that is being exposed here in this committee today.

I want to thank the witnesses and thank the chairman for the indulgence to go beyond my 5 minutes.

The CHAIRMAN. Thank you, Mr. Vento.

I do know that some of the members have departed, and I myself have a jillion questions, but if that is the case, we would be unfair to the witnesses, so we will sum up.

However, I wanted to comment on something here Mr. Vento was bringing up.

Mr. SerVaas, Mr. Vento had explained in quite a detail his arrangement, and the requirements for the financing, and the satisfaction thereof by the BNL as the Iraqi supporter of the letter of credit, but the Export-Import Bank did report that it did not consider Iraq creditworthy, and it had some history there of defaults.

However, the State Department—and we are going to have a hearing next Wednesday, April 17, and we are going to have the Export-Import Bank and hear the testimony—the State Department intervened and demanded that the Export-Import Bank go out on the limb, as it did, and that is for guarantees which did expose the Government on those loans.

Of course, the witnesses, I think, have very well portrayed the tremendous myriad, the difficulty, the complexity of that area, and the historical background that adds to that complexity. The use of poison gas, for instance. Frankly, it is a shameful episode for the colonial powers, because the first one to authorize the use of a chemical, which was mustard gas, was Winston Churchill, in Iraq, on the request of the Royal Air Force, that was having trouble, in the words of the request, with "recalcitrant Arabs," and Winston Churchill said, I see no reason why there should be any hesitation, you know, these are weapons that are available to us.

They actually then were used after Churchill left the War Office, and that was in 1923. The British did use gas against Iraqi citizens, of what is now Iraq.

As I see it, I think the big thing we do not see from our perspective, is we do not perceive ourselves as most of that part of the

world perceives us, and that is, stepping into the shoes of the two departed colonial powers, England and France. I believe that is the way we are perceived.

I know it does not sound right to us, but the truth is, all you have to do is read in their intellectual discussions, in their literature, and we can see.

Therefore, the defense procurement, for instance—and I wish Mr. Slattery were still here—we can wax indignant how our military does not know, but actually, the Defense Department, in its procurement, is now procuring a great percentage from foreign countries.

Sole source, in the most sophisticated weaponry used in this last war, if we can consider it as being over, an overwhelming percentage of the vital component parts are foreign-made. They are not manufactured domestically in the United States. This was an expressed concern by a high-ranking Department of the Air Force official, but it is true. That is the other side of this.

We had testimony with respect to kickbacks, Mr. Wiley. They were not kickbacks in the sense of kickbacks to Iraqi officials. These were apparently in some form of false billings to the business involved, the American business involved. We did have testimony to that effect in one of the first hearings we had. So we do have all of that, and of course, as ever, whether it is in public or private enterprise, if you have secrecy and no accountability to speak of, you are going to have to have some abuses.

I think the most astounding thing today was Mr. Newcomb's testimony that the President's Executive orders do not cover the private accounts, for example, the private accounts of the Emirate family and the Al-Sabah. And I know as a matter of fact, has had billions, over \$160 billion alone in the United States, not in the name of Kuwait or the Kuwait Government, but in the family name, and at least another \$100 billion more in Europe and in Switzerland.

Now, some day, some congressional committee will be looking into how much of that money was used in stimulating the intervention on behalf of Kuwait, but at this point, I think the significant thing is that if that is the case, as Mr. Newcomb answered, he said that is right, Presidential Executive order does not cover those accounts, it is entirely possible that Saddam Hussein, not in his name perhaps, but in another private citizen's name, could have money right now in the United States that is not covered by that Executive order. I think that is the most amazing thing, and therefore it comes back to us on this committee on how we can structure the proper responsible regulatory environment.

We know now the Federal Reserve Board, which is supposed to be chiefly responsible for foreign bank enterprises doing business in the United States will, insofar as say the headquarters, and the original branch in the United States, of even this case, of the BNL, but we know that when it comes to chartering a State, either agency or branch, that it becomes further complicated and impossible to really govern.

I was going to ask Mr. Abboud as the banker witness here—and this will save writing some questions—that you give us the benefit, and perhaps we may ask your indulgence again and call you back

specifically on what suggestions you have on the restructuring, and what you would visualize as a proper, and not an improper, or a sort of an oppressive type of regulatory framework. We certainly do not want to oppress international trade and financing, or obstruct it, but we certainly do know that the national interest demands that we do something about this lack of regulatory oversight.

As I said at the very beginning, we are the only country that does not have any kind of real oversight. Even in direct investments or indirect prime-asset investments in our country, we do not have a screening board. Canada does, even Canada. We are the only nation that does not. So we are very grateful to you. I know I speak for every member of this committee. If you did not see more Members here, it is because, as I said at the outset, of the circumstances under which we are meeting, which were totally unforeseen last week, some of it so sad.

However, we do have one of our new Members that came in late, and I was just going to recognize his presence and ask him if he had anything to say, for about 1 minute.

Mr. MORAN. Thank you very much, Mr. Chairman. We do appreciate your initiating these hearings.

The question I have is on July 27, when the administration lobbied very strongly for an additional \$500 million in crop credit assistance for Iraq, did we not know the experience that we had had with the Atlanta branch in using their conduit capacity to generate machine parts and other manufactured goods that could be of assistance to Iraq in the event of a military engagement?

At the time we had 30,000 Iraqi troops on the border with Kuwait but we also must have had some indication of the banking system that we were dealing with through which this crop assistance was being funneled.

I would like to know if anybody has any knowledge of our knowledge at that point in time, 5 days before the invasion occurred.

I happened to see an article in the *New York Times* about that time where it was revealed that some of this money, it was about \$4 billion up to that point that we had provided Iraq in the form of crop subsidies, had actually used through kickback schemes and the like to acquire truck parts and other machinery that would be of Iraq's benefit but was not in any way consistent with the intent of the legislation that the administration asked us, asked the Congress, to pass.

Can anybody respond to that?

Mr. ABBOUD. Congressman, I am not aware of what we knew at that time about Atlanta and Banca Nazionale del Lavoro but with regard to the CCC credits which I think are an invaluable, useful program that we have for American farmers to get our agricultural products sold, if they are done correctly, and I just happened to have an example of one of ours right here, which was a rice shipment that basically we sent or hard, red winter wheat shipment that we sent out to Iraq or the rice shipment we sent to Iraq, each one of those requires a bill of lading.

It requires a certificate as to who the exporter is. The money goes, and this happened to be a Houston exporter, the money goes directly to the Houston exporter. It shows the destination. For ex-

ample, it goes out through the port of Kuwait and up into Iraq so if these programs are administered properly and all the documentation is there it is very hard for them to be abused and for money to be siphoned off because the money stays right here. It goes exactly to that farmer that you're supposed to know or the exporting agency that you are supposed to know and goes to pay for the crops.

Mr. MORAN. But it is a fact that some of it did not go to pay for crops—

Mr. ABOUD. The Banca Nazionale del Lavoro apparently had two sets of books and they abused the program and they diverted it.

I think that there has to be a bifurcation that what is an abuse of a good program was really done in kind of a venal way for whatever reason, probably greed or whatever—to get that thing going, but the basic program itself is a very desirable program.

I would hope that what would emanate out of these hearings would be not a cutback of that particular program—maybe some additional surveillance, maybe some additional scrutiny, maybe some additional controls, maybe more regulatory oversight but basically the program is a good, sound program and good for the American farmer.

Mr. MORAN. Well, I am sure it's good for the American farmer but there are a number of countries in need of agricultural products grown in the United States but the recipient, the client, of that program, I think you would agree, left something to be desired, and particularly when you do have evidence of a manipulation of a program for other purposes then the program ought to be suspended at least until those accusations are checked into.

That is why I was surprised that the administration so strongly urged that the \$500 million in additional assistance go to Iraq after the misdeeds of the Banca Nazionale branch in Atlanta had already been uncovered.

That is the only comment I would make. We have got a kind of a rocky path that led to the initiation of hostilities and I hope the chairman is right, that this war is over. I am not sure that it is but, well, we don't want to enter a period of recrimination. We nevertheless want to look into some of the causal reasons why we found ourselves in that situation and try not to repeat them in the future if it can be helped.

This may be one of the situations that ought not be repeated. Thank you—and thank you, Mr. Chairman.

The CHAIRMAN. Well, that's right. I think, Mr. Abboud, all good things are susceptible to abuse somewhere or another and that is when you don't have accountability, but I think that this was one egregious example where the United States guaranteed the bribes because that is what it actually did in some of those cases.

I don't think we had evidence that they were Texas transactions! [Laughter.]

Mr. ABOUD. No.

Mr. MORAN. I certainly did not mean to imply that by any means, Mr. Chairman.

Mr. ABOUD. Not at all.

Mr. MORAN. Let the record be very clear on that.

Mr. ABBOUD. Thank you.

The CHAIRMAN. Anyway, thank you, gentlemen.

You have been very patient and very, very helpful.

We will still have some questions. I know I'll have one or two for Mr. Moore and Mr. Kowalsky and Mr. Carus, but thank you very much. Your testimony covered the ground.

[Whereupon, at 1:55 p.m., the hearing recessed, to reconvene at the call of the Chair.]

## APPENDIX

April 9, 1991

PREPARED STATEMENT OF R. RICHARD NEWCOMB  
DIRECTOR, OFFICE OF FOREIGN ASSETS CONTROL  
DEPARTMENT OF THE TREASURY

before the

COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS  
U.S. HOUSE OF REPRESENTATIVES

April 9, 1991

Economic Sanctions Against Iraq and Kuwait

Chairman Gonzalez and members of the committee:

My name is R. Richard Newcomb and I am the Director of the Office of Foreign Assets Control at the United States Department of the Treasury. I am here today to appear before the committee to discuss the Treasury Department's role in formulating, administering, and enforcing the sanctions against Iraq and Kuwait.

The Office of Foreign Assets Control ("FAC") has primary responsibility within the Executive branch for implementing the financial and trade sanctions against Iraq and measures to protect the assets of the legitimate Government of Kuwait. In addition to these programs, FAC also administers economic sanctions programs against Libya, Iran, South Africa, Cuba, Vietnam, Cambodia, and North Korea and administers certain residual World War II asset controls affecting the Baltic Republics. The Office was also responsible for administering the recently-concluded economic sanctions programs against the Sandinista regime in Nicaragua and the Noriega regime in Panama.

This morning I will address the topics and concerns in which you have expressed an interest, which relate principally to the blocking of Iraqi and Kuwaiti assets in the United States. I will also comment on your offer to suggest measures which would increase FAC's effectiveness in formulating, administering, and enforcing administrative sanctions.

Identification and Blocking of Iraqi and Kuwaiti Assets

Following the Iraqi invasion of Kuwait on August 2, the President, acting under authority of the International Emergency Economic Powers Act ("IEEPA"), declared a national emergency and issued Executive Orders No. 12722 and No. 12723 ("the August 2 Executive Orders"), which froze all Iraqi and Kuwaiti government-owned assets within the jurisdiction of the United States or under the control of U.S. persons and imposed an immediate and comprehensive trade embargo against Iraq.

On August 6, the United Nations Security Council, to bring the invasion and occupation of Kuwait to an end and to restore the sovereignty, independence, and territorial integrity of Kuwait, decided that all U.N. member states should impose sweeping economic sanctions against Iraq and occupied Kuwait. On August 9, the President issued Executive Orders No. 12724 and No. 12725, this time acting under authority of IEEPA and the United Nations Participation Act, broadening the U.S. sanctions with respect to both Iraq and Kuwait to include a complete prohibition on trade and trade-related activities with any person located within the territories of Iraq or Kuwait, in addition to continuing the freeze of Iraqi and Kuwaiti government-owned assets imposed seven days earlier. The Executive orders of August 2 and 9 were developed by Treasury with the assistance of the Departments of State and Justice, the White House staff and National Security Council. The sanctions programs presented by the orders are similar, in whole or in part, to sanctions programs previously implemented with respect to other countries, most notably Libya in 1986.

The August 9 Executive order with respect to Iraq:

-- prohibits exports and imports of goods, technology, and services between the United States and Iraq, and any activity that promotes or is intended to promote such exportation and importation;

-- prohibits any dealing by a U.S. person in connection with property of Iraqi origin exported from Iraq after August 6, 1990;

-- prohibits transactions related to travel;

-- prohibits transactions related to transportation to or from Iraq, or the use of vessels or aircraft registered in Iraq by U.S. persons;

-- prohibits the performance by any U.S. person of any contract in support of projects in Iraq;



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-- prohibits the commitment or transfer of funds or other financial or economic resources by any U.S. person to the Government of Iraq, or any other person in Iraq; and

-- blocks all property of the Government of Iraq located in the United States or in the possession or control of U.S. persons, including their foreign branches on or after August 2, 1990.

The August 9 Executive order with respect to Kuwait imposed essentially the same regimen of economic sanctions on Kuwait, then under occupation and control by Iraq. Since the liberation of Kuwait, the prohibitions on most trade and financial transactions with Kuwait have been removed through the issuance of a general license authorizing such transactions. Similarly, except for seven Kuwaiti banks, the U.S. property of the Government of Kuwait has been effectively unblocked by general license. The seven banks, while remaining blocked, are licensed to utilize their assets to settle pre-August 2 obligations.

The objectives of the Executive orders were to deprive Iraq of any economic or financial benefits that might result from its illegal invasion and occupation of Kuwait and to preserve and protect the assets of the Government of Kuwait for the benefit of their rightful owner. Iraqi assets blocked in the United States and in all U.N. member states may be used as a source of funds to pay claimants and creditors of Iraq if such a course of action is determined appropriate and enabling legislation is enacted.

The August 2 Executive orders immediately froze, by operation of law, all property and interests in property, of the Governments of Iraq and Kuwait that were in, or thereafter came within, the jurisdiction of the United States or under control of U.S. persons. Any unauthorized transfers of property or interests in property subject to the blocking orders occurring after the effective date are deemed to be null and void. This means that a U.S. financial institution, for example, which transfers blocked funds after the effective date without authorization from FAC can be penalized for violating the sanctions.

On the morning of August 2, immediately after the President signed the blocking orders, FAC began contacting major U.S. money center banks and requested that the Federal Reserve Bank of New York ("the FRBNY") notify Federal Reserve member banks of the blocking. We also began a series of what have since become regular consultations with the FRBNY, and various U.S. Government agencies, including the Departments of State, Commerce, and Defense, the Customs Service, the FBI, the NSC, and members of the intelligence and law enforcement communities. Since the morning of August 2, we have travelled abroad several times for coordination meetings with our allies. We have also met with

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hundreds of U.S. and foreign businesses, official agencies, and individuals affected by the sanctions, in addition to responding to several thousand telephone inquiries and pieces of correspondence. Additionally, we have an ongoing program in place with foreign governments and their embassies which enables us to act in concert with all governments worldwide to ensure the uniform application of all U.N. resolutions.

On August 3, we issued a press release announcing the first of a series of general licenses designed to address many of the most immediate and pressing problems relating to the freeze. Most of these licenses addressed the need to safeguard and preserve the value of the frozen assets and investments without causing unnecessary and irreparable harm to the interests of innocent third parties, including those of many U.S. businesses and individuals and of the legitimate Government of Kuwait.

The need to quickly address these complicated and fact-intensive problems proved especially critical with respect to the Kuwaiti assets since the freeze was intended primarily as a protective measure, and complete immobilization of the Kuwait governmental assets in the United States for a prolonged period would have diminished their value and disrupted a number of markets.

These initial licenses addressed problems such as: what to do about Iraqi and Kuwaiti oil already en route to the United States on the effective date; how to complete or unwind variously affected financial or securities transactions entered into prior to the effective date; what types of transactions or investments by blocked companies or investment portfolios owned or controlled by the Government of Kuwait to allow to continue unimpeded; and what to do about payments due under letters of credit involving U.S. banks for goods or services exported to Iraq or Kuwait prior to the effective date. These general licenses, as well as the specific licenses we have issued on a case-by-case basis, have been carefully crafted to ensure that transactions permitted thereunder are consistent with the objectives of the sanctions and do not confer any realizable benefit on the Government of Iraq. These licenses have been fully incorporated into a comprehensive body of implementing regulations published on November 30, 1990, for Kuwait and on January 18, 1991, for Iraq.

Very early in the program we began meeting regularly with Kuwaiti Embassy officials to begin the process of identifying and clarifying the status of Kuwaiti-owned entities around the world, licensing limited operation of Kuwait entities within U.S. jurisdiction under the effective control of legitimate governmental authorities, and generally coordinating the efforts of our respective governments concerning the sanctions. We received excellent cooperation from the Kuwaiti authorities. This proved to be an understandably painstaking and tedious

process inasmuch as the legal, financial, and commercial information required to make these determinations must be precise and accurate. Moreover, this information must be obtained from various locations worldwide and some of the records were destroyed or were under the control of Iraqi authorities.

In the first few weeks, our efforts regarding Kuwait focused heavily on identifying and clarifying the status of Kuwaiti-owned banks and financial institutions and communicating this information through the Federal Reserve System. By October 4, we were able to issue a general notice clarifying the status of 94 major banking and non-banking entities or corporate groups operating in the United States.

Obviously, no such assistance was forthcoming from the Government of Iraq. In identifying and blocking Iraqi assets, both in the U.S. and worldwide, FAC has relied upon the cooperation of allied governments, other Federal agencies, the business community, and the investigative efforts of its own staff.

#### The Nature of the Property Blocked

The Kuwaiti and Iraqi government-owned assets frozen by the August 2 Executive orders were substantial. The frozen Kuwaiti investments totalled in the billions of dollars and consisted primarily of bank deposits, debt and equity securities (involving both direct investment and portfolio holdings), and real estate. Most of these assets were owned or controlled by licensed Kuwaiti governmental entities such as the Kuwait Investment Office and the Kuwait Investment Authority. The blocked Iraqi assets in Government of Iraq designated accounts will total more than a billion dollars. They are primarily bank deposits and blocked oil payments. On February 11, 1991, we initiated a formal census or inventory of these blocked assets as well as U.S. financial claims against Iraq by publishing in the Federal Register regulations requiring the filing of reports by all U.S. holders of Iraqi property and U.S. claimants against Iraq as to the full extent of such assets and claims. The inventory of blocked Iraqi assets has not yet been completed; thus a total value is not yet available.

In addition to the publication of the list of Specially Designated Nationals, which I will describe momentarily, six individual blocking actions have been taken to identify property not clearly known to the public as property of the Government of Iraq.

#### Iraqi-Owned or -Controlled Companies

Through information obtained by FAC from readily available public sources, as well as from the domestic and international intelligence communities, we have undertaken a major initiative to identify front companies and agents used to acquire technology, equipment, and other resources for Iraq. This is called the Specially Designated Nationals or "SDN" program. As in the case of current sanctions against Cambodia, Cuba, Libya, North Korea, and Vietnam, FAC has the authority to "specially designate"--i.e., to identify publicly and to block--any person, whether an individual or a business, directly or indirectly owned or controlled by the Government of Iraq, or who acts or purports to act for or on its behalf.

The term "specially designated national" is not used in the Iraqi Sanctions Regulations (31 C.F.R. Part 575, 56 Fed. Reg. 2112 (January 18, 1991) ("ISR"). Such designation relies rather on the definition of the Government of Iraq provided by Section 575.306 of the ISR:

The term "Government of Iraq" includes:

- (a) The state and the Government of Iraq, as well as any political subdivision, agency, or instrumentality thereof, including the Central Bank of Iraq;
- (b) Any partnership, association, corporation, or other organization substantially owned or controlled by the foregoing;
- (c) Any person to the extent that such person is, or has been, or to the extent that there is reasonable cause to believe that such is, or has been since the effective date [August 2, 1990], acting or purporting to act directly or indirectly on behalf of any of the foregoing; and
- (d) Any other person or organization determined by the Director of the Office of Foreign Assets Control to be included in this section.

In practice, a Specially Designated National of the Government of Iraq ("Iraqi SDN") is an Iraqi government body, representative, agent, intermediary, or front (whether overt or covert) that is located outside Iraq and functions as an extension of the Government of Iraq. It may be a firm created by the Iraqi government, or it may be a third-country company that otherwise becomes owned or controlled by the Iraqi government, or that operates for or on behalf of the Government of Iraq.

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The effect of being listed as an Iraqi SDN is four-fold: (1) the SDN is exposed internationally as an Iraqi government front; (2) U.S. persons will be prohibited from any trade or transactions with the SDN; (3) the SDN's property, including financial assets, within U.S. jurisdiction (which includes U.S. banks' corporate branches overseas) will be blocked; and (4) other governments will be urged to take similar steps or other appropriate actions against the SDNs subject to their jurisdiction. As a matter of U.S. law, persons holding the property of any Iraqi SDN or other property in which there is a Government of Iraq interest must report that information to FAC.

A U.S. company or individual could be designated as an Iraqi SDN and, as such, would have its assets blocked by FAC and, in effect, would be put out of business. Note that, because of the definition of "Government of Iraq" in the ISR, a U.S. firm that had not been designated an SDN, but in which the Government of Iraq holds a controlling interest, is already subject to blocking. For example, in September 1990 FAC served a blocking notice covering all bank accounts and tangible property of the Matrix-Churchill Corporation of Solon, Ohio. Public sources of information demonstrated that the company was owned by Iraqi-controlled companies in England. Last month, the property and accounts of a Santa Monica, California, based company as well as that of its owner and his wife, were blocked. All were identified as participants in Saddam Hussein's arms network.

On April 1, Treasury formally identified these and other businesses and individuals worldwide as front companies and agents of Iraq. The full list of these companies and individuals, which are now considered SDNs, accompanies my testimony as an attachment. The Iraqi SDN list is not a static document, but will be continuously augmented as additional front companies and agents are identified.

For U.S. persons, dealing with an Iraqi SDN is equivalent to doing business with the Government of Iraq--an activity that is prohibited by Executive Orders No. 12722 and No. 12724, and the ISR. Such violations are subject to severe penalties. Pursuant to the Iraq Sanctions Act (Pub.L. 101-513, Sec. 586E), civil penalties of up to \$250,000 may be imposed administratively. Criminal fines of up to \$1,000,000 per violation may be imposed on both individuals and corporate entities, and prison sentences of up to 12 years are authorized for individuals, including officers, directors, and agents of a corporation, who are knowingly involved in a corporate criminal violation.

#### Problems in Blocking Assets

I have already alluded to the frenzy of activity into which the staff of FAC was plunged beginning on the morning of

August 2, and which continued in the weeks and months to follow. The incredible demands placed on the Office by the Iraqi emergency occupied every member of my staff and resulted, unfortunately but necessarily, in a temporary suspension of much of our important work in the various other sanctions programs currently in effect. The American people have every reason to be proud, as I am, of this loyal and dedicated cadre of individuals who worked literally around-the-clock, putting aside their personal lives to perform countless hours of uncompensated service, under very difficult conditions, to put the new sanctions program in effect and make them work as intended. The workload demands of the Iraqi and Kuwaiti programs more than equalled that of all other sanctions programs combined, but international crises are seldom predictable, nor is the workload they create. Ultimately, we were fortunate to be able to get personnel detailed to us from other agencies and got the job done.

#### Monitoring of Government-Controlled Banks

Under the Executive orders, as well as the Kuwaiti Assets Control Regulations and the Iraqi Sanctions Regulations, the definitions of Government of Kuwait and Government of Iraq include the central bank of each country. For this reason all assets of the Central Bank of Kuwait and the Central Bank of Iraq that were in the control of a U.S. person were blocked from August 2, 1990. Secondly, any transaction between these entities and any U.S. person required the authorization of FAC. Where transactions affecting the assets of the Central Bank of Kuwait or the Central Bank of Iraq occurred pursuant to FAC authorization, reports were required to ensure that the transactions were carried out in a manner consistent with the authorization. The Government of Kuwait complied fully with the requirements to report regularly on the assets of the Central Bank of Kuwait which were subject to U.S. jurisdiction.

It is a pleasure to appear before this committee again. I will be pleased to respond to any questions.

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Attachment

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**Office of Foreign Assets Control****31 CFR Part 575****Iraqi Sanctions Regulations**

**AGENCY:** Office of Foreign Assets Control, Department of the Treasury.

**ACTION:** Final rule; List of specially designated nationals of the Government of Iraq; List of vessels registered, owned or controlled by the Government of Iraq.

**SUMMARY:** The Iraqi Sanctions Regulations (the "Regulations") are being amended to add a new appendix A and a new appendix B to the end thereof. Appendix A contains the list of Individuals and Organizations Determined to be Within the Term "Government of Iraq" (Specially Designated Nationals of Iraq). The list at Appendix A contains the names of companies and individuals which the Director of the Office of Foreign Assets Control has determined are acting or purporting to act directly or indirectly on behalf of the Government of Iraq. Appendix B contains the names of merchant vessels registered, owned, or controlled by the Government of Iraq. These lists may be expanded or amended at any time.

**EFFECTIVE DATE:** April 3, 1991.

**ADDRESSES:** Copies of these lists are available upon request at the following location: Office of Foreign Assets Control, U.S. Department of the Treasury, Annex, 1500 Pennsylvania Avenue NW., Washington, DC 20220.

**FOR FURTHER INFORMATION CONTACT:** Richard J. Hollas, Chief, Enforcement Section, Office of Foreign Assets Control, Tel.: (202) 566-5021.

**SUPPLEMENTARY INFORMATION:** The Iraqi Sanctions Regulations, 31 CFR part 575 (56 FR 2112, Jan. 18, 1991, the "Regulations") were issued by the Treasury Department to implement Executive Orders No. 12722 and 12724 of August 2 and August 9, 1990, in which the President declared a national emergency with respect to Iraq, invoking the authority, *inter alia*, of the International Emergency Economic Powers Act (50 U.S.C. 1701 *et seq.*) and the United Nations Participation Act (22 U.S.C. 287c), and ordered specific measures against the Government of Iraq.

Section 575.306 of the Regulations defines the term "Government of Iraq" to include:

- (a) The state and the Government of Iraq, as well as any political subdivision, agency, or instrumentality thereof, including the Central Bank of Iraq;
- (b) Any partnership, association, corporation, or other organization substantially owned or controlled by the foregoing;
- (c) Any person to the extent that such person is, or has been, or to the extent that there is reasonable cause to believe that such person is, or has been, since the effective date, acting or purporting to act directly or indirectly on behalf of any of the foregoing; and
- (d) Any other person or organization determined by the Director of the Office of Foreign Assets Control to be included within this section.

Determinations that persons fall within this definition are effective upon the date of determination by the Director, Office of Foreign Assets Control ("FAC"). Public notice is effective upon the date of publication or upon actual notice, whichever is sooner.

This rule adds appendix A to part 575 to provide public notice of a list of persons, known as "specially designated nationals" of the Government of Iraq. The list consists of companies and individuals whom the Director of the Office of Foreign Assets Control has determined to be owned or controlled by or to be acting or purporting to act directly or indirectly on behalf of the Government of Iraq, and thus fall within the definition of the "Government of Iraq" contained in § 575.306 of the Regulations. The persons included in appendix A are subject to all prohibitions applicable to other components of the Government of Iraq. All unlicensed transactions with such

persons, or its property in which they have an interest, are prohibited.

The list of specially designated nationals is a partial one, since FAC may not be aware of all the persons located outside Iraq that might be owned or controlled by the Government of Iraq or acting as agents or front organizations for Iraq, and which thus qualify as specially designated nationals of the Government of Iraq. Therefore, persons engaging in transactions may not rely on the fact that any particular person is not on the specially designated nationals list as evidence that it is not owned or controlled by, or acting or purporting to act directly or indirectly on behalf of, the Government of Iraq. The Treasury Department regards it as incumbent upon all U.S. persons to take reasonable steps to ascertain for themselves whether persons they enter into transactions with are owned or controlled by the Government of Iraq or are acting or purporting to act on its behalf, or on behalf of other countries subject to blocking (at present, Cambodia, Cuba, Libya, North Korea, and Vietnam).

This rule also adds appendix B to part 575 to provide public notice of a list of merchant vessels which the Director of the Office of Foreign Assets Control has determined to be registered, owned, or controlled by the Government of Iraq or by persons acting or purporting to act directly or indirectly on behalf of the Government of Iraq, pursuant to § 575.306 of the Regulations. The merchant vessels included in appendix B constitute blocked property in which the Government of Iraq has an interest, and are subject to all the prohibitions applicable to the Government of Iraq. No U.S. person may engage in any unlicensed transaction involving these vessels.

The list of Government of Iraq-flagged, owned, or controlled vessels is a partial one, since FAC may not be aware of all merchant ships registered, owned, or controlled by the Government of Iraq or by persons located outside Iraq that may be acting as agents or front organizations for Iraq who fall within the definition of "Government of Iraq." Therefore, persons engaging in transactions may not rely on the fact that any particular vessel is not on the list as evidence that it is not owned or controlled by the Government of Iraq. The Treasury Department regards it as incumbent upon all U.S. persons to take reasonable steps to ascertain for themselves whether such vessels are registered, owned, or controlled by Iraq or by other countries subject to blocking or transportation-related restrictions (at

present, Cambodia, Cuba, Libya, North Korea, and Vietnam).

Section 586E of the Iraq Sanctions Act of 1990, contained in the Foreign Operations Authorization and Appropriations Act of 1990, dated November 5, 1990, 104 Stat. 1979, provides for civil penalties not to exceed \$250,000 for violations of the Regulations and fines of up to \$1,000,000 and imprisonment for up to 12 years for willful violations of the Regulations. In addition, section 5(b) of the United Nations Participation Act of 1945 (22 U.S.C. 287c(b)) provides for the forfeiture of any property involved in a violation of the Regulations.

#### List of Subjects in 31 CFR Part 575

Banks, Banking, Exports, Imports, Iraq, Kuwait, Loans, Penalties, Reporting and recordkeeping requirements.

1. The authority citation for part 575 continues to read as follows:

Authority: 50 U.S.C. 1701 *et seq.*; 50 U.S.C. 1601 *et seq.*; 22 U.S.C. 287c; Public Law 101-513, 104 Stat. 2047-35 (Nov. 5, 1990); 3 U.S.C. 301; E.O. 12722, 55 FR 31803 (Aug. 3, 1990); E.O. 12724, 55 FR 33089 (Aug. 13, 1990).

2. Appendices A and B to part 575 are added to read as follows:

#### Appendix A—Individuals and Organizations Determined To Be Specially Designated Nationals of the Government of Iraq

Please note that addresses of companies and persons may change. The addresses listed below are the last ones known to the Office of Foreign Assets Control. Where an address is not listed or someone wishes to check for latest address information, the Office of Foreign Assets Control will assist with any updated information in its possession.

##### Companies

1. Admincheck Limited, 1 Old Burlington Street, London, England, United Kingdom
2. Advanced Electronics Development, Ltd., 3 Mandeville Place, London, England, United Kingdom
3. Al-Arabi Trading Company Limited, Lane 11, Hai Babil, Baghdad District 929, Iraq
4. Al-Rafidin Shipping Company, Bombay, India
5. The Arab Petroleum Engineering Company Ltd., Amman, Jordan
6. Arab Projects Company S.A. Ltd., P.O. Box 1318, Amman, Jordan
7. Arab Trans Trade Co. S.A.E., 36, Kaft Abdou Street, Roushdy, Alexandria 481 638, Egypt
8. Archi Centre I.C.E. Limited, 3 Mandeville Place, London, England, United Kingdom
9. Archiconsult Limited, 128 Buckingham Place, London 5, England, United Kingdom



10. Associated Engineers, England, United Kingdom
11. A.T.E. International Ltd., f/k/a RWR International Commodities, 3 Mandeville Place, London, England, United Kingdom
12. Atlas Air Conditioning Company Limited, 55 Roebuck House, Palace Street, London, England, United Kingdom
13. Atlas Equipment Company Limited, 55 Roebuck House, Palace Street, London, England, United Kingdom
14. A.W.A. Engineering Limited, 3 Mandeville Place, London, England, United Kingdom
15. Banco Brasileiro-Iraqiano S.A., Praca Pio X, 54-100 Andar, CEP 20091, Rio de Janeiro, Brazil (Head office and city branch)
16. Bay Industries, Inc., 10100 Santa Monica Boulevard, Santa Monica, California, United States
17. Dominion International, England, United Kingdom
18. Endshire Export Marketing, England, United Kingdom
19. Euromac Ltd., 4 Bishops Avenue, Northwood, Middlesex, England, United Kingdom
20. Euromac European Manufacturer Center SRL, Via Ampere 5, 20052 Monza, Italy
21. Euromac Transport International SRL, Via Ampere 5, 20052 Monza, Italy
22. Falcon Systems, England, United Kingdom
23. Geodesigns, England, United Kingdom
24. Investacast Precision Castings, Ltd., 112 City Road, London, England, United Kingdom
25. I.P.C. International Limited, England, United Kingdom
26. I.P.C. Marketing Limited, England, United Kingdom
27. Iraqi Airways, Saddam International Airport, Baghdad, Iraq
28. Operating 8, 1010 Wien, Vienna, Austria
29. General Service Agent, Bangladeshi-owned Travel Agency, Dhaka, Bangladesh
30. Rio de Janeiro, Brazil
31. Jiangmenwai Diplomatic Housing Compound, Building 7-1, 5th Floor, Apartment 4, Beijing, People's Republic of China
32. Prague Airport, Prague, Czechoslovakia
33. Nekazanka 3, Prague 1, Czechoslovakia
34. Copenhagen, Denmark
35. Main Eisenhüttenplatz 26, Frankfurt 6, Germany
36. Rome, Italy
37. Tokyo, Japan
38. Casablanca, Morocco
39. The Netherlands
40. 27, Ulica Grojecka, Central Warsaw, Poland
41. Tunis, Tunisia
42. Ankara, Turkey
43. Moscow, U.S.S.R.
44. Abu Dhabi, United Arab Emirates
45. 4 Lower Regent Street, London SW1Y 4P, United Kingdom
46. 5825 W. Sunset Blvd. #218, Los Angeles, California 90028, United States
47. 25040 Southfield Road, Southfield, Michigan 48075, United States
48. Building 68, J.F.K. International Airport, Jamaica, New York 11430, United States
49. 1211 Avenue of the Americas, New York, New York 10036, United States
50. Sanaa, Yemen
51. Belgrade, Yugoslavia
52. Iraqi Allied Services Limited, England, United Kingdom
53. Iraqi Freight Services Limited, England, United Kingdom
54. Iraqi Reinsurance Company, 31-35 Fenchurch Street, London EC3M 3D, United Kingdom
55. Iraqi State Enterprise for Foodstuffs Trading, P.O. Box 1308, Colombo 3, Sri Lanka
56. P.O. Box 2839, Calcutta 700 001, India
57. Iraqi State Enterprise for Maritime Transport, Bremen, Germany
58. Amman, Jordan
59. Iraqi Trade Center, Dubai, United Arab Emirates
60. Keencloud Limited, 11 Catherine Place, Westminster, London, England, United Kingdom
61. Matrix Churchill Corporation, 5903 Harper Road, Cleveland, Ohio 44139, United States
62. Meed International Limited, 3 Mandeville Place, London, England, United Kingdom
63. Pandora Shipping Co., S.A., Honduras
64. Petra Navigation & International Trading Co. Ltd., White Star Building, P.O. Box 8382, Amman, Jordan
65. Armoush Bldg., P.O. Box 485, Aqaba, Jordan
66. 18 Huda Sharawi Street, Cairo, Egypt
67. Hai Al Wahda Mahalat 906, 905 Zulaik 50, House 14, Baghdad, Iraq
68. 39. PMK/QUODS (Liverpool Polytechnic), England, United Kingdom
69. Rafidain Bank, New Banks' Street, P.O. Box 11360, Messarif, Baghdad, Iraq (227 branches in Iraq)
70. P.O. Box 607, Manama, Bahrain (2 branches in Bahrain)
71. 114 Tahreer Str. Eldukki, P.O. Box 239, Omran Giza, Cairo, Egypt
72. P.O. Box 1194, Cinema el-Husseini Street, Amman, Jordan
73. P.O. Box 685, Aqaba, Jordan
74. P.O. Box 815401, Jabai Amman, Jordan
75. Mafrqa, Jordan
76. 2nd Floor Sadat Tower, P.O. Box 1891, Beirut, Lebanon (2 branches in Lebanon)
77. Sheikh Khalifa Street, P.O. Box 2727, Abu Dhabi, United Arab Emirates
78. Rafidain Bank Building, 7-10 Leadenhall Street, London EC3V 1NL, United Kingdom
79. P.O. Box 10023, Sanaa, Yemen Arab Republic
80. 41. Rajbrook Limited, England, United Kingdom
81. Reynolds and Wilson, England, United Kingdom
82. S.M.I. Sewing Machines Italy S.P.A., Italy
83. Sollatek, England, United Kingdom
84. Technology and Development Group Ltd., Centric House 390/391, Strand, London, England, United Kingdom
85. T.E.G. Limited, 3 Mandeville Place, London, England, United Kingdom
86. T.M.G. Engineering Limited, Castle Row, Horticultural Place, Chiswick, London, England, United Kingdom
87. T.N.K. Fabrics Limited, England, United Kingdom
88. Trading & Maritime Investments, San Lorenzo, Honduras
89. U.I. International, England, United Kingdom
90. UNIMAS Shipping, 138 El Geish Road, P.O. Box 44, Alexandria, Egypt
91. 52. Whale Shipping Ltd., c/o Government of Iraq, State Organization of Ports, Maqal, Basrah, Iraq

#### Individuals

1. Abbas, Abdul Hussein, Italy
2. Abbas, Kassim, Italy
3. Abraham, Trevor, England, United Kingdom
4. Ahmad, Rasem, P.O. Box 1318, Amman, Jordan
5. Ahmad, Wallid Issa, Iraq
6. Al-Amiri, Adnan Talib Hassim, 43 Palace Mansions, Hammersmith, London, England, United Kingdom
7. Al-Azawi, Dafir, Iraq
8. Al-Dajani, Leila N.S., P.O. Box 1318, Amman, Jordan
9. Al-Dajani, Nadim S., P.O. Box 1318, Amman, Jordan
10. Al-Dajani, Sa'ed, P.O. Box 1318, Amman, Jordan
11. Al-Habobi, Dr. Safa Haji J., Flat 4D Thorne Court, Palace Gate, Kensington, England, United Kingdom
12. Ali, Abdul Mutalib, Germany
13. Allen, Peter Francis, "Greys", 36 Stoughton Lane, Stoughton, Leicestershire, England, United Kingdom
14. Al-Ogailly, Akram H., Flat 2, St. Ronons Court, 63 Putney Hill, London, England, United Kingdom
15. Amaro, Joaquim Ferreira, Praca Pio X, 54-10\* Andar, CEP 20091, Rio de Janeiro, Brazil
16. Armoush, Ahmed, White Star Bldg., P.O. Box 8382, Amman, Jordan
17. Armoush, Ali, White Star Bldg., P.O. Box 8382, Amman, Jordan
18. Aziz, Fouad Hamza, Praca Pio X, 54-10\* Andar, CEP 20091, Rio de Janeiro, Brazil
19. Daghir, Ali Ashour, 2 Western Road, Western Green, Thames Ditton, Surrey, England, United Kingdom
20. Fattah, Jum' Abdul, P.O. Box 1318, Amman, Jordan
21. Hand, Michael Brian, England, United Kingdom
22. Henderson, Paul, 4 Copt Oak Close, Tile Mill, Coventry, Warwickshire, England, United Kingdom
23. Jon, Hans Paul, 16 Tudor House, Windsor Way, Brook Green, London, England, United Kingdom
24. Jume'an, George, P.O. Box 1318, Amman, Jordan
25. Kadhum, Dr. Fadel Jawad, c/o Alvaney Court, 250 Finchley Road, London, England, United Kingdom
26. Khoshaba, Robert Kambar, 15 Harefield Road, Maidenhead, Berkshire, England, United Kingdom
27. Mohamed, Abdul Kader Ibrahim, Jiangmenwai Diplomatic Housing Compound, Building 7-1, 5th Floor, Apartment 4, Beijing, People's Republic of China
28. Omran, Karim Dhaidas, Iraq
29. Raouf, Khalid Mohammed, Praca Pio X, 54-10\* Andar, CEP 20091, Rio de Janeiro, Brazil
30. Rucks, Roy, 87 St. Mary's Frice, Benfield,

Essex, England, United Kingdom  
 31. Schmitt, Rogério Eduardo, Praça Pio X, 54-10<sup>o</sup> Andar, CEP 20091, Rio de Janeiro, Brazil  
 32. Sim, Gilberto F., Praça Pio X, 54-10<sup>o</sup> Andar, CEP 20091, Rio de Janeiro, Brazil  
 33. Souza, Francisco Antonio, Praça Pio X, 54-10<sup>o</sup> Andar, CEP 20091, Rio de Janeiro, Brazil

34. Speckman, Jeanine, England, United Kingdom  
 35. Tall, Aktham, P.O. Box 1318, Amman, Jordan  
 36. Teveira, A. Arnaldo G., Praça Pio X, 54-10<sup>o</sup> Andar, CEP 20091, Rio de Janeiro, Brazil  
 37. Zahran, Yousof, P.O. Box 1318, Amman, Jordan

# APPENDIX B—Merchant Vessels Registered, Owned, Or Controlled by the Government of Iraq or by Persons Acting Directly or Indirectly on Behalf of the Government of Iraq

• All ships listed on Iraqi-registered unless otherwise indicated.  
 • "N/A" is listed where information is not available.

Vessel name	Ship type	DWT	Call sign	Owner
1. Am Za'ah	Tkr	36,330	HNZ	Iraqi Oil Tankers Company, Basrah, Iraq
2. Al Anbar	Tug	N/A	YIAV	Government of the Republic of Iraq, Managed by the State Organization of Iraq Ports, Basrah, Iraq
3. Al Fao	Res	80	YIAN	State Org. of Iraq Ports
4. Al Karamah	Tkr	12,882	HNKM	Iraqi Oil Tankers Company
5. Al Khalida	Tkr	7,155	HNKD	Iraqi Oil Tankers Company
6. Al Mansur	Ycht	1,223	HNMR	Iraqi State Enterprise for Water Transport
7. Al Mersad	Svc	4,649	YIMD	State Org. of Iraq Ports
8. Al Mousil	Svc	1,219	YIAS	State Org. of Iraq Ports
9. Al Nasir	Svc	4,740	YINF	State Org. of Iraq Ports
10. Al Nasir	Svc	2,444	DDRH	State Org. of Iraq Ports
11. Al Nasir	Tkr	1,522	HNHR	Iraqi Oil Tanker Company
12. Al Omerah	Tug	320	YIAW	State Org. of Iraq Ports
13. Al Ramech	Tug	320	YIAI	State Org. of Iraq Ports
14. Al Rasheed	Svc	304	YIBE	State Org. of Iraq Ports
15. Al Raiba	Tkr	544	YIBA	State Org. of Iraq Ports
16. Al Shumookh	Tug	375	N/A	State Org. of Iraq Ports
17. Al Waheed	Res	N/A	YEF	State Org. of Iraq Ports
18. Al Zab	Tug	N/A	YISH	State Org. of Iraq Ports
19. Al Zawraa	Cgo	3,549	HNZW	Iraqi State Enterprise for Water Transport, Bagdad
20. Al-Aiyas	Tug	375	N/A	State Org. of Iraq Ports
21. Al-Amin	Tug	368	YIAM	State Org. of Iraq Ports
22. Al-Baath	Tkr	9,928	HNBT	Iraqi Oil Tankers Company
23. Al-Bahr	Res	390	YIBR	State Org. of Iraq Ports
24. Al-Bayra	Brg	1,662	HNHB	Iraqi State Enterprise for Water Transport, Formerly the Habbob
25. Al-Enisar	Tug	375	N/A	State Org. of Iraq Ports
26. Al-Hathir	Tug	368	YIHR	State Org. of Iraq Ports
27. Al-Karrak	Tug	368	YIKH	State Org. of Iraq Ports
28. Al-Khalij, Al-Arab	Svc	4,740	YIKA	State Org. of Iraq Ports
29. Al-Nohood	Tug	375	YINU	State Org. of Iraq Ports
30. Al-Qadisiya	Ycht	100	HNKS	Iraqi State Enterprise for Water Transport
31. Al-Ressala	Tug	368	YIRF	State Org. of Iraq Ports
32. Al-Sahel Al-Arab	Svc	6,396	HNSA	Iraqi State Enterprise for Sea Fisheries, Basrah, Iraq
33. Al-Thumrah	Tkr	524	YITH	State Org. of Iraq Ports
34. Al-Wandah	Tug	149	YIWM	State Org. of Iraq Ports
35. Alabid	Brg	1,662	HNDB	Iraqi State Enterprise for Water Transport, Formerly the Sanabul
36. Aladrees	Cgo	3,550	HNID	Iraqi State Enterprise for Water Transport
37. Alarab	Cgo	8,342	HNFB	Iraqi Oil Tankers Company
38. Alarand	Tkr	149,441	HNFR	Iraqi Oil Tankers Company
39. Alifaa	Brg	1,662	HNFD	Iraqi State Enterprise for Water Transport, Formerly the Slowat
40. Alkhansaa	Cgo	3,525	HNKN	Iraqi State Enterprise for Water Transport
41. Alkind	Cgo	8,342	HNKI	Iraqi State Enterprise for Water Transport
42. Almustafayyah	Tkr	155,210	HNMS	Iraqi Oil Tankers Company
43. Almustafabb	Tkr	190,241	HNMB	Iraqi Oil Tankers Company
44. Alnasal	Svc	4,740	YINF	State Org. of Iraq Ports
45. Alqadisiyah	Tkr	155,210	HNQS	Iraqi Oil Tankers Company
46. Alsumood	Svc	6,977	YISD	State Org. of Iraq Ports
47. Altaawin Alarab	Cgo	13,634	HNAI	Iraqi State Enterprise for Water Transport
48. Awahda	Brg	1,662	HNAD	Iraqi State Enterprise for Water Transport
49. Awahda	Cgo	8,343	HNWS	Iraqi State Enterprise for Water Transport
50. Alwairum	Tkr	149,371	HNWK	Iraqi Oil Tankers Company
51. Alzabir	Svc	4,642	YIZR	State Org. of Iraq Ports
52. Amuraysh	Tkr	155,210	HNAM	Iraqi Oil Tankers Company
53. Anisra	Svc	508	YIBD	State Org. of Iraq Ports
54. Anseel	Tug	320	YIBB	State Org. of Iraq Ports
55. Baba Gurgur	Tkr	36,397	HNGR	Iraqi Oil Tankers Company
56. Babylon	Cgo	13,656	HNBS	Iraqi State Enterprise for Water Transport
57. Badr 7	Svc	647	N/A	Government of the Republic of Iraq, Ministry of Oil, State Company for Oil Prospects, Bagdad, Iraq (Iraqi Saudi Arabia)
58. Bagdad	Svc	2,900	YIAD	State Org. of Iraq Ports
59. Bagdad	Cgo	13,656	HNBD	Iraqi State Enterprise for Water Transport
60. Baiqeers	RO/RO	3,985	HNBL	State Organization of Iraq Government
61. Basra	Svc	2,906	YIAB	State Org. of Iraq Ports
62. Basrah	Cgo	13,656	HNBS	Iraqi State Enterprise for Water Transport
63. Buzurgan	Tkr	36,400	HNBR	Iraqi Oil Tankers Company
64. Damascus	Tug	149	YIDS	State Org. of Iraq Ports
65. Damen Gonchem 5716	Svc	N/A	N/A	State Org. of Iraq Ports
66. Damen Gonchem 5717	Svc	N/A	N/A	State Org. of Iraq Ports
67. Damen Gonchem 5718	Svc	N/A	N/A	State Org. of Iraq Ports

Vessel name	Ship type	DWT	Call sign	Owner
68. Deyala	Tug	350	YIBJ	State Org. of Iraq Ports.
69. Deyan	Tug	356	MNDU	State Org. of Iraq Ports.
70. Diving Launch 1	Svc	N/A	N/A	State Org. of Iraq Ports.
71. Dhwanyia	Tug	350	YIBK	State Org. of Iraq Ports.
72. Doctra	Ttr	528	YIDN	State Org. of Iraq Ports.
73. Dump Barge I	Svc	1,330	JERY	Whale Shipping Ltd., c/o State Org. of Iraq Ports (flag: Gibraltar).
74. Dump Barge II	Svc	1,330	JBZJ	Whale Shipping Ltd., c/o State Org. of Iraq Ports (flag: Gibraltar).
75. Dump Barge III	Svc	1,330	JBJA	Whale Shipping Ltd., c/o State Org. of Iraq Ports (flag: Gibraltar).
76. Fire Boat No. 705	Svc	N/A	N/A	State Org. of Iraq Ports.
77. Fire Boat No. 706	Svc	N/A	N/A	State Org. of Iraq Ports.
78. Foral	Fah	1,163	HNFL	Rahdan Fisheries Co. Ltd., Basrah, Iraq.
79. Fursi	Tug	350	HNFT	State Org. of Iraq Ports.
80. Gaza	Svc	2,422	YIGZ	State Org. of Iraq Ports.
81. Hamdan	Tug	367	YIHM	State Org. of Iraq Ports.
82. Heel	Tug	89	N/A	State Org. of Iraq Ports.
83. Hella	Svc	6,708	YIAR	State Org. of Iraq Ports.
84. Hameen	Svc	508	YIHN	State Org. of Iraq Ports.
85. Hira	Ttr	155,210	HNMT	Iraqi Oil Tankers Company.
86. Ibn Khaldoun	Svc	12,670	HNHN	State Org. of Iraq Ports.
87. Ibn Majid 6	Svc	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia).
88. Imharan	Tug	368	YIMH	State Org. of Iraq Ports.
89. Jabha	Tug	244	YIJA	State Org. of Iraq Ports.
90. Jambur	Ttr	35,338	HNJM	Iraqi Oil Tankers Company.
91. Jarmhona	Tug	368	YIUR	State Org. of Iraq Ports.
92. Katal	Fah	1,170	HNKL	Rahdan Fisheries Co. Ltd.
93. Kerbala	Svc	N/A	N/A	State Org. of Iraq Ports.
94. Khaleel Ibn Al Waleed	Svc	2,235	YIBM	State Org. of Iraq Ports.
95. Kharsen	Ttr	35,338	HNKO	Iraqi Oil Tankers Company.
96. Khawla Bati Al Zawra	RO/RO	3,865	HNKN	Iraqi State Emergency for Water Transport.
97. Kirtuk	Ttr	35,338	HNKK	Iraqi Oil Tankers Company.
98. Mandak	Svc	8,577	YIOS	State Org. of Iraq Ports. Formerly the Alhadisyah.
99. Maysaloon	Tug	368	YIMY	State Org. of Iraq Ports.
100. Maasan	Tug	310	YIMN	State Org. of Iraq Ports.
101. Methaq	Tug	248	YIMQ	State Org. of Iraq Ports.
102. Moon Lady	RO/RO	3,865	HNKZ	Pandora Shipping Co., S.A., Honduras. Managed by Petra Navigation & International Trading Co. Ltd., Amman, Jordan. Formerly the Iraq-owned AL-ZAHRAA (flag: Honduras).
103. Nagroor	Fah	140	N/A	Government of the Republic of Iraq, Ministry of Agriculture & Agrarian Reform, State Fisheries Company, Baghdad, Iraq.
104. Narawa	Tug	310	YIMW	State Org. of Iraq Ports.
105. Nar	Svc	744	YISR	State Org. of Iraq Ports.
106. No. 1	Svc	30	N/A	State Org. of Iraq Ports.
107. No. 2	Svc	30	N/A	State Org. of Iraq Ports.
108. Nuwabi	Fah	140	N/A	Iraqi State Fisheries Co.
109. Ohod 5	Svc	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia).
110. Ohod 6	Svc	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia).
111. Ohod 7	Svc	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia).
112. Orooba	Tug	368	YIOB	State Org. of Iraq Ports.
113. Orion Maru No. 2	Svc	N/A	N/A	State Org. of Iraq Ports.
114. Palestine	Svc	4,649	YIFN	State Org. of Iraq Ports.
115. Pilot 393	Svc	N/A	N/A	State Org. of Iraq Ports.
116. Pilot 394	Svc	N/A	N/A	State Org. of Iraq Ports.
117. Police 1	Pri	N/A	N/A	State Org. of Iraq Ports.
118. Police 2	Pri	N/A	N/A	State Org. of Iraq Ports.
119. Police 3	Pri	N/A	N/A	State Org. of Iraq Ports.
120. Radhwa 18	Tug	N/A	N/A	Iraqi State Company for Oil Projects.
121. Radhwa 19	Tug	N/A	N/A	Iraqi State Company for Oil Projects.
122. Radhwa 20	Tug	N/A	N/A	Iraqi State Company for Oil Projects.
123. Roban	Fah	129	N/A	Iraqi State Fisheries Company.
124. Rumala	Ttr	36,330	HNRM	Iraqi Oil Tankers Company.
125. Sa' Saad	Svc	742	N/A	State Org. of Iraq Ports.
126. Sama's	Fer	N/A	YIBC	State Org. of Iraq Ports.
127. Seneh	Svc	508	YISM	State Org. of Iraq Ports.
128. Sook	Fah	129	HNKZ	Iraqi State Fisheries Company.
129. Seabank	Fah/Cgo	8,953	HOHRA	Trading & Maritime Investments, Honduras. Managed by Arab Trans Trade Co. S.A.E., Alexandria, Egypt. Formerly the Iraq-owned AL-BAHAR AL-ARABI (flag: Honduras).
130. Seamus II	Cgo	26,732	BMYH2	Seamus Shipping Co. Ltd., c/o Themans Ship Management Inc., Athens, Greece. Vessel Seized by Government of Iraq (flag: Malta).
131. Seena Nisan	Tug	368	YISN	State Org. of Iraq Ports.
132. Shaboot	Fah	1,163	HNLK	Rahdan Fisheries Co., Ltd.
133. Shari al Basrah	Fah	404	HNKR	Iraqi State Fisheries Company.
134. Shorook	Svc	403	YISH	State Org. of Iraq Ports.
135. SHU' Ash	Tug	N/A	N/A	State Org. of Iraq Ports.
136. Shih	Tug	367	YISI	State Org. of Iraq Ports.
137. Sinai	Svc	1,286	N/A	State Org. of Iraq Ports.
138. Sinyar	Svc	N/A	YIAY	State Org. of Iraq Ports.
139. Sky Sea	Cgo	8,334	HNKZ	Pandora Shipping Co. S.A., Honduras. Managed by Petra Navigation & International Trading Co. Ltd., Amman, Jordan. Formerly the Iraq-owned ALRAZI (flag: Honduras).
140. Solmechnik	Fah	404	UOJE	Iraqi State Fisheries Company.
141. Sulamanyan	Svc	N/A	YIAG	State Org. of Iraq Ports.

Vessel name	Ship type	DWT	Call sign	Owner
142. Survey Launch No. 1.....	Res.....	N/A	N/A	State Org. of Iraq Ports.
143. Survey Launch No. 2.....	Res.....	N/A	N/A	State Org. of Iraq Ports.
144. Survey Launch No. 3.....	Res.....	N/A	N/A	State Org. of Iraq Ports.
145. Tadmur.....	Tkr.....	3,627	HNTH	Iraqi Oil Tankers Company.
146. Tahreer.....	Svc.....	4,649	YTTR	State Org. of Iraq Ports.
147. Tark Ibn Ziyad.....	Tkr.....	118,139	HNTH	Iraqi Oil Tankers Company.
148. Theeqar.....	Tug.....	220	YIAC	State Org. of Iraq Ports.
149. Ur.....	Tug.....	368	YIUR	State Org. of Iraq Ports.
150. Work Boat No. 6.....	Brg.....	N/A	N/A	State Org. of Iraq Ports.
151. Workshop 3.....	Svc.....	N/A	N/A	State Org. of Iraq Ports.
152. Yanbu 31.....	Svc.....	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia).
153. Youstfan.....	Tug.....	386	YIYN	State Org. of Iraq Ports.
154. Zain Al Qaws.....	Cgo.....	9,247	HNZO	Iraqi State Enterprise for Water Transport.
155. Zamzam.....	Tkr.....	544	YIAZ	State Org. of Iraq Ports.
156. Zanoobia.....	Cgo.....	3,549	HNZN	Iraqi State Enterprise for Water Transport.
157. Zubayr.....	Fsh.....	N/A	YIBO	State Org. of Iraq Ports.
158. 1 Alfar.....	Tkr.....	1,502	HNAR	Iraqi Oil Tankers Company.
159. 1 Hurzan.....	Tkr.....	1,502	HNHN	Iraqi Oil Tankers Company.
160. 7 Nisaa.....	Tkr.....	1,502	HNHN	Iraqi Oil Tankers Company.

Dated: March 13, 1991.

R. Richard Newcomb,

Director, Office of Foreign Assets Control.

Approved: March 15, 1991.

John P. Simpson,

Acting Assistant Secretary: (Enforcement).

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**PARTIAL TEXT OF REMARKS OF DR. STEPHEN D. BRYEN  
PREPARED FOR DELIVERY TO THE COMMITTEE ON BANKING,  
FINANCE AND URBAN AFFAIRS, April 9, 1991**

Between 1981 and 1988 I served as Deputy Under Secretary of Defense for Trade Security Policy and as Director of the Defense Technology Security Administration. During part of my tenure my agency was involved in export license cases for Iraq.

From 1985 until I left in 1988 the Defense Technology Security Administration objected to about forty percent of the licenses that came before it for Iraq. This is an extraordinarily large number of objections. Comparably, the objection rate for the Soviet Union runs at about five percent; even when "approvals with conditions" are added in for the USSR, the overall rate comes to less than half the turn down rate for Iraq.

Generally speaking, most of our strongest objections for Iraq concerned the potential use of the exported goods for Iraq's nuclear program, for missile testing and construction, and for chemical and biological weapons development. Examples include special computers for missile testing, analytical instruments best suited for chemical and biological weapons development, satellite and airborne surveillance equipment to accurately locate distant targets, and furnaces for Iraq's nuclear weapons development program.

In most cases when we raised these issues in the system we ran into strong opposition from both the Commerce Department and the State Department. In July, 1987 on the urging of the State Department, the National Security Council directed us to be "more forthcoming" in respect to Iraq. The NSC singled out a number of the cases we had held up, and urged us to revisit them. We decided, in all but two or three of the cases identified by the NSC, to stick by our guns and not give in because we had evidence the technology was going into strategic military programs.

There is no doubt that United States policy was heavily "tilted" toward Iraq. Our argumentation, therefore, was aimed at clarifying what our policy was in respect to military end use of dual use technology by Iraq. We tried to establish that, even in cases where there might be a military end use, that any use for non-conventional weapons (e.g., chemical, biological or nuclear) or for

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their delivery systems (the Missile Technology Control Regime) needed to be prevented because of our legal and international responsibilities.

It is important to keep in mind that official U.S. policy was that we would not provide military support either to Iran or Iraq. While we might be prepared to help Iraq in a wide variety of other ways, military support was not allowed. For that reason we never sold any weapons to Iraq. Dual use equipment that can be used to manufacture arms we regarded as the same as the sale of arms.

Obviously our policy did not mean anything to either the Commerce Department or the State Department. The Commerce Department, with State Department backing in some instances, was routinely approving sales of military technology and goods including helicopters, military trucks, special electronic equipment to the Iraqi Air Force --even machines to repair jet engines and damaged rocket casings! In literally all of these cases my agency in the Defense Department was not told about these transactions.

It is important to note that the United States is obliged to follow the Nuclear Non Proliferation Act, the Geneva Conventions on Chemical and Biological Warfare and, after 1987 the Missile Technology Control Regime. There is no doubt in my mind that these instruments were violated in spirit and in fact by public officials who were more interested in appeasing a dictator in Iraq than conforming to international law and approved policy.

Why is it that this was allowed to go on and we did not carry out our international obligations or execute our stated policy on non-proliferation?

On one level the evidence shows that our non-proliferation policy was inoperative. We didn't take it seriously; the people in charge of it had very little idea of how to apply it; allies and friends around the world quite rightly questioned our sincerity about arms proliferation. Indeed our excesses turned out to be quite modest when compared to the performance of many of the European countries. Having no reason to find us credible, Western Europe supplied an incredible amount of sophisticated technology and helped Iraq in its missile programs, nuclear reactor and weapons programs and in its effort to produce mustard gas, nerve agents, and biochemical substances such as anthrax and micotoxins.

At another level the evidence shows that institutionally we will have more

"Iraqs" in future because the system we have cannot properly regulate sensitive, strategic exports.

There are a number of reasons for this. To begin with, strategic exports cannot be regulated by the Commerce Department and the State Department acting alone. The national security agencies have to play a concrete part. Right now, the Defense Department is excluded from even knowing about 90 percent of what is exported from the United States!

There is a complete lack of workable checks and balances in the system. That is why the State Department and the Commerce Department could, with impunity, release technology to Iraq. If we in the Defense Department complained too much, they simply would issue export permits and not tell us, or they would threaten us with "12-C Violations." This type of intimidation is very effective and it was used, and continues to be used, with effect.

In addition there is a complete policy "fog" in regard to export controls. U.S. policy was deeply conflicted in the 1980s in respect to export controls and Iraq. The result was (1) that we exported technology that should not have been sold and (2) our allies saw sales to Iraq only as a competition --not one of them was the least bit concerned about the risks these transfers caused for stability in the Persian Gulf and world wide.

Rather than see some improvement now, there is every reason to believe the situation is about to deteriorate even more. The United States is backing a major liberalization in COCOM which is the organization that regulates East-West high technology trade. A huge array of high technology, advanced microprocessors, high speed computers, precision machine tools, night vision equipment, sophisticated analytical instruments, advanced radars and air traffic computers will be released from effective multinational control.

The result will be that all of this technology will be available without any license to any country, for any project, without any national or multilateral review or control.

For example, countries such as Libya, Syria, Iran, Iraq, and North Korea will be able to buy this technology directly from the United States, from Japan or from any of the European countries. No licenses will be required. Any kind of assistance, including help to build military factories, will be available without

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regulation. In addition, the Soviet Union, whose armaments were shown to be technologically inferior in the recent war, will be able to both upgrade their weapons and enhance their arms export business thanks to our technology.

Carrying forward this policy, as the administration now is doing, will make it impossible to establish any meaningful policy on arms proliferation in the future.

In summary I believe our entire export system is in disarray and continues launched on a dangerous course that cannot serve our national interest or the cause of world peace. While export controls cannot completely protect us from bad policy and poor judgement, a solidly built export control system combined with a multinational framework such as COCOM can play a concrete role in enhancing our security and the security of our allies and friends.





Testimony of W. Seth Carus,  
Fellow, Washington Institute for Near East Policy,  
Before the  
Committee on Banking, Finance and Urban Affairs  
U.S. House of Representatives  
April 9, 1991

Mr. Chairman, it is an honor to be asked to testify before this committee to discuss Iraq's unconventional weapons programs. The Iraqi case has many unique features. Nevertheless, our experience with Iraq provides some insights into the wider problem of weapons proliferation. If we learn from our past successes and failures it may be possible to develop more effective policies in the future.

In the next few minutes, I would like to outline the extent of Iraq unconventional weapons programs and the resulting responses by the United States and our allies. Mr. Chairman, in the interest of time, I will give only a summary and request that my full statement be submitted for the record.

Before proceeding, however, let me provide some background on my qualifications to discuss this subject. During the past several years, I have been affiliated with the Washington Institute for Near East Policy, a Middle East oriented think tank, as a research fellow concentrating on military affairs. In the course of my work, I have had the opportunity to publish articles and books on the proliferation of missiles, chemical weapons, and biological weapons. Although most of this research focused on developments in the Third World at large, or in the Middle East in general, Iraq had become such an important part of the global problem that I have written monographic studies on Iraq's chemical and biological weapons programs and on selected aspects of its ballistic missile program.

When I began this research four years ago, relatively little was known about many facets of Iraq's unconventional weapons programs. The magnitude of Iraqi endeavors, however, was so great that information in increasing amounts has surfaced. It must be stressed, however, that the public record is incomplete. There are considerable gaps, but it is now possible to provide an outline of Iraqi efforts to develop nuclear, chemical, and biological capabilities and ballistic missiles.

#### Iraqi Unconventional Weapons Programs

There are many countries attempting to develop unconventional warfare capabilities in the Third World. According to some estimates, by the end of this decade eight Third World countries could be nuclear capable, more than twenty could have chemical weapons, several will have biological weapons capabilities, and as many as fifteen might be producing surface-to-surface missiles. Thus, Iraq was only one of many countries seeking to acquire unconventional weapons capabilities.

Iraqi activity, however, was unique in three important respects. First, no Third World country tried so hard to develop such a broad range of capabilities so quickly. Iraq was devoting extensive resources to acquiring not only a full range of unconventional and advanced conventional capabilities, but also was seeking to build an infrastructure capable of supporting such programs. Moreover, unlike many countries which have been content to slowly develop capabilities, the Iraqis wanted them immediately. Hence, during the past few years Iraq was engaged in a flurry of proliferation activities probably unprecedented in the Third World. Indeed, even though Iraq probably had more money than any other Third World country to spend on unconventional weapons, a result of its substantial oil exports, it lacked the financial resources to pay for the programs in the works. Significantly, the pace of activity in many instances appears to have accelerated following the end of the war with Iran in 1988. As a result, Iraq was overextending itself financially to the detriment of the long-term future of the country.

Second, in many instances Iraq was attempting to develop autonomous production

capabilities independent of external sources of supply. This was especially evident with the chemical weapons program. Not only was Iraq attempting to produce chemical agents, but it also was developing an ability to manufacture the precursor chemicals as well. Thus, Iraq was working to create production facilities that would enable it to take crude oil and transform it into mustard gas or to mine phosphate ore and turn it into one of several nerve agents. There is reason to believe that similar efforts were underway in other areas as well. Iraq was attempting to acquire production capabilities for components of strategic weapons. As a result, it is often difficult to distinguish between activities intended to produce legitimate civilian goods from those intended to support weapons production.

Third, unlike most other Third World countries, Iraq was ready and willing to employ its unconventional weapons. It used chemical agents as early as 1983 in violations of the Geneva Protocol, which prohibits first use of chemical weapons. It developed extended-range ballistic missiles specifically to launch at Iranian cities. Starting in 1988, it began extensive employment of chemical agents against civilians, mainly Iraqi Kurds. It appears that the Iraqis threatened to employ chemical agents against Iranian cities as well.

Nuclear: The origins of the Iraqi nuclear program date to the mid-1970s. At that time, France agreed to sell Iraq a nuclear reactor capable of producing plutonium, which could be used to make atomic bombs. An Israeli air strike during 1981, however, destroyed the reactor before it was activated. There is some evidence of continued Iraqi interest in nuclear weapons during subsequent years.

By 1989, however, information became available indicating that Iraq had made its nuclear weapons program a high priority. Iraq was caught attempting to acquire technology needed to produce vacuum centrifuge technology suitable for producing highly enriched uranium. Although significant gaps remain in our knowledge of Iraqi capabilities, it seems certain that Iraq would have possessed a stockpile of nuclear weapons by the end of the decade. This would have been made possible by enrichment facilities capable of producing sufficient highly enriched uranium to assemble one or more bombs a year.

Most of the technology needed for this nuclear infrastructure was acquired by Iraq in West Europe. Iraq was able to purchase, often in apparent violation of export control regulations, designs and components to build both centrifuges and manufacturing equipment ultimately needed to produce components. Some of the equipment came from the United States, although alert action by the U.S. Customs Service appears to have inhibited Iraqi activity here.

Chemical: The Iraqi chemical weapons program originated in the early 1970s. Iraq attempted to acquire production facilities suitable for the manufacture of chemical agents in a number of countries, including the United States, Britain, and Italy during the 1970s. It was not until the early 1980s, however, that it found companies in West Germany willing to supply such plants with no questions asked. Initially, this led to the construction of production units at Samarra capable of producing mustard gas, nerve agents, and hydrogen cyanide. According to some estimates, Iraq was capable of producing as much as 1,000 tons of chemical agent a year, though actual production may have been lower. All known exports of precursor chemicals, the chemicals used to make chemical agents, from the United States resulted in criminal investigations or in changes in regulations to cover future exports.

Iraq relied on precursor chemicals acquired in West Europe, Japan, and the United States. For example, press reports suggest that it purchased at least 1,500 tons of thiodiglycol from companies in the Netherlands, Belgium, Spain, the United States, and Japan, sometimes in direct violation of export laws. Thiodiglycol is one step away from mustard gas, and this quantity of was sufficient to produce as much as 2,700 tons of mustard gas.

Even though Iraq was able to acquire precursor chemicals, the dangers posed by export regulations in supplier countries led it to develop an indigenous production capacity for such chemicals. Nerve agent precursor production was initiated at a complex located at Falluja, an industrial city west of Baghdad. In addition, Iraq invested heavily in industries relying on phosphate, apparently to acquire infrastructure needed to ensure autonomous production of nerve agents. Similarly, Iraq developed plans for Petrochemical Complex Number 2, an ethylene production facility that would have included units to make ethylene oxide. Ethylene oxide is the

main ingredient needed to make thiodiglycol. Completion of these projects, originally planned for the early 1990s, would have given Iraq an autonomous production capability for chemical agents.

Biological: Relatively little is known about the infrastructure supporting Iraq's biological weapons program. It is known that West German companies built the research and development facility at Salman Pak, and provided at least some of the machinery and supplies needed to operate the program. It is possible, however, that equipment supplied for other purposes was adapted by the Iraqis for use in their program. Iraq was developing an indigenous pharmaceutical industry, including vaccine production, and it possessed other industries capable of producing biological agents. In this respect, it must be stressed that machinery needed to produce biological agents can be used to manufacture legitimate organisms as well.

It is not known where Iraq acquired the cell cultures for use in production of biological agents. Although Iraq acquired some organisms in the United States, acquisition of pure strains of potential biological agents is one of the least difficult aspects of developing a weapons capability.

Missile: Although Iraq may have initiated work on ballistic missiles in the late 1970s, it was not until 1987 that the first finished product emerged. This was the Al-Husayn, a modified version of the Soviet-built Scud-B missile with an extended range. Approximately 190 of these missiles were fired at Iranian cities in 1988, and it appears that more than 80 were fired at Israel and Saudi Arabia in early 1991. Operating under the auspices of Project 124, the Al-Husayn missiles were cannibalized versions of Scud-B missiles. It is not known who designed or produced the modification, but the available evidence tends to suggest that the systems design may have been done in East Germany and the actual production in Iraq.

During the past two years, Iraq embarked on follow-on projects to produce Al Husayn and comparable missiles. This effort involved production of critical components in West Germany for eventual assembly in Iraq. Tentative information suggests that the missiles fired by

Iraq in early 1991 reflected only some of the benefits of these new projects.

Potentially of greater significance were some of the other projects underway in Iraq. The most important was the Condor II missile, known in Egypt as the Badr 2000. This missile was designed in West Germany for production by Argentina and Egypt. Additional technical assistance came from Italy. Iraq funded development, and was expected to receive at least half the missiles built. Technical problems, growing costs, and diplomatic pressure by the United States on Egypt, Argentina, Italy, and West Germany led to a collapse of the program in 1988.

By 1989, however, an infrastructure was beginning to appear in Iraq potentially capable of developing similar missiles. This included the Sa'ad 16 research and development complex at Mosul and the production facilities associated with Project 395. The Sa'ad 16 complex was the recipient of much of the high technology equipment sold to Iraq by American companies. It provided Iraq with advanced engineering labs suitable for developing a range of modern weapons systems, including ballistic missiles. Project 395 gave Iraq production facilities comparable to those associated with the Condor II program in Argentina. It remains unclear whether these facilities were completed, and it is not known if they produced any finished product before being destroyed in the air attacks after the start of the Persian Gulf War in January 1991.

#### U.S. Policy

The United States has a mixed record regarding its policies towards Iraq's unconventional weapons programs. The United States government led efforts to impose supplier controls on the Iraqi chemical, nuclear, and missile programs. Nevertheless, more could and should have been done. The United States was slow to act against Iraq's use of chemical weapons during the Iran-Iraq War. Moreover, our export policies permitted Iraq to acquire critical dual use technologies needed to produce unconventional weapons, even as we worked to stem the proliferation of such weaponry. Nevertheless, our support for Iraq was not absolute and it should be recognized that the United States was responsible for most of the important initiatives taken to constrain Iraqi activity.

Several factors motivated U.S. policy towards Iraq through most of the 1980s. First, there was considerable concern that Iraq might lose the war it started with Iran. Given the aggressive anti-Western views of the fundamentalist regime in Iran, the United States and its allies believed that our interests were best served by making sure that Iraq did not lose the war. This was reflected in "Operation Staunch," an aggressive effort by the United States to impede weapons sales to Iran, and in the intelligence information reportedly supplied to Iraq.

Second, it appears that some officials hoped that Iraq could be convinced to drop its radical political orientation. Since the 1958 revolution, Iraq has been a leading supporter of anti-Western policies in the region. During the course of the Iran-Iraq War, however, Iraq began to moderate many of its declared policies. This led some people, both in the United States and the Arab world, to conclude that Iraq might be encouraged to align itself with pro-Western countries in the region.

Finally, Iraq was a potentially lucrative market for U.S. exports. During the Iran-Iraq War, the United States loaned Iraq money to purchase agricultural goods. Once the war came to an end, it was believed that Iraq might turn to American companies to acquire many of the items needed for reconstruction. Accordingly, U.S. companies were encouraged to supply high technology items related to petrochemical, fertilizer, and other industrial projects.

Despite the pro-Iraqi tilt that developed during the 1980s, the United States did not ignore the efforts by Iraq to develop unconventional weapons capabilities. A variety of initiatives were launched to constrain such activities as they were identified. Many of these initiatives were extremely successful, a fact which was reflected in many of the hostile comments directed by Iraq at the United States through the early months of 1990.

The United States was directly involved in efforts intended to prevent export of materials needed by Iraq for its chemical, nuclear, and missile programs.

- Chemical: The United States was at the forefront of efforts to stop Iraq's chemical weapons production program. Through involvement in the Australia Group and domestic export regulations, the United States sought to prevent Iraq from acquiring the precursor chemicals needed to make chemical agents. At the same time, the United States tried to convince allied countries, but especially West Germany, to take similar steps.

- Nuclear: When it became evident that Iraq was resuming its nuclear weapons program, the United States moved vigorously to prevent exports of technology needed by Iraq in this project. In 1989, the United States prevented Iraq from acquiring vacuum pumps potentially useful in the production of highly enriched uranium. In 1990 an attempt to purchase capacitors suitable for use in nuclear weapons was stopped.
- Missile: The United States was responsible for creation of the Missile Technology Control Regime, a suppliers agreement intended to prevent countries like Iraq from obtaining ballistic missiles and the technology needed to make such weapons. Pressure from the United States also was largely responsible for the collapse of the Condor II missile program, a joint Iraqi-Egyptian-Argentinean missile project based on West German and Italian technology.

Although more could have been done, the record of the United States contrasts favorably with most other major exporting countries.

Despite the many useful steps taken against Iraqi unconventional weapons programs, there was much that could have been done that was not done. Exports of dual use technology was allowed, even though it could be used to produce advanced technology weapons, including ballistic missiles. The complexity of the United States position can be illustrated by a detailed look at U.S. policy towards Iraqi chemical weapons.

The United States government worked vigorously to prevent Iraq from obtaining and sustaining a capability to produce chemical weapons. Such activity started soon after it was determined that Iraq had used chemical weapons against Iran in 1983. This activity is reflected in three areas. First, the United States was a founding member of the so-called Australia Group, a suppliers group consisting of Western countries with chemical industries which agreed to keep Iraq suppliers group which consists of Western suppliers gathering of Western countries. The Australia Group was created at the initiation of the government of Australia, but with the active support of the United States, following reports of widespread Iraqi use of chemical weapons during the Iran-Iraq War. In addition, the United States has supported more recent efforts to expand the activities of the Australia Group to cover production equipment as well as precursor chemicals.

Second, the United States government actively worked to prevent exports of precursor chemicals from the United States. Perhaps the most dramatic episode took place in February



1984, when U.S. Customs officials intercepted a shipment of potassium fluoride, a chemical useful in the production of nerve agents. The shipment had been arranged by a Nashville, Tennessee, company, Al Haddad Brothers Trading Company, which was primarily engaged in the export of grain to Iraq. Although the export of the chemical was not illegal at the time, it appears that Customs officials stopped the shipment.

The United States moved aggressively against Alcolac, a Baltimore company, in 1988 when it was discovered to be supplying Iraq with a key mustard gas precursor, thiodiglycol. In total, this company exported approximately 500 tons of thiodiglycol to Iraq, enough to make as much as 900 tons of mustard gas.

Third, the United States engaged in bilateral diplomacy intended to convince other countries of the need to constrain the Iraqi chemical weapons program. For example, it appears that demarches were sent to the government of the Federal Republic of Germany as early as 1984. This reflected the primary role played by West German companies in constructing Iraqi chemical weapons production facilities.

The positive record reflected in these examples stand in stark contrast to what was not done, but should have been. First, greater pressure should have been placed on allied countries to control illicit exports in support of chemical, nuclear, biological, and missile programs. West Germany paid little attention to U.S. demarches, leading one former U.S. official to call them "demarshmallows." In retrospect, it may have been wise to step up pressure on the government of West Germany. Given the extensive involvement of West German companies in a host of proliferation cases involving countries as diverse as Pakistan, India, Iraq, and Libya, much might have been gained by a harsher line with the Bonn government. Unfortunately, concerns over the health of the NATO alliance dominated U.S. policy towards the Federal Republic during the 1980s. However appropriate such an orientation may have been in the 1980s, it is evident that we will pay a price for this policy in the 1990s and beyond.

Second, the United States should have made support for the 1925 Geneva Protocol a top priority from the beginning. Although the United States first criticized Iraq for use of chemical weapons in 1984, protests were few and far between during the next five years. Often the

statements "deplored use of chemical weapons in the Iran-Iraq War," as though both parties were equally to blame. It was not until after the vicious gas attacks in April 1988 on the Kurdish town of Halabja, during which as many as 5,000 people may have died, that the United States escalated its protests against Iraqi use of chemical agents. Even then, it was not until after the subsequent use of chemical weapons in August 1988 against Kurdish villages in northern Iraq that an aggressive diplomatic campaign was mounted. It is true that the United States played an active role in organizing the January 1989 Paris Conference, which reaffirmed international support for the Geneva Protocol. However, it was too little too late.

The United States record on these matters is better than most countries, but not what it should have been. Our country took many appropriate steps to deal with Iraqi proliferation. Unfortunately, certain critical actions were not taken to the ultimate detriment of U.S. national security. If the United States had acted vigorously against Iraqi employment of chemical agents in early 1984, the extent of chemical weapons proliferation might have been drastically reduced. If we had acted against the irresponsible export policies of West Germany in the early 1980s, the world might be a safer place today and many of the dangers we will face in the future might have been delayed or averted.

#### Preventing Future Iraq's

Several interesting conclusions emerge from an examination of Iraq's efforts to acquire unconventional weapons capabilities. First, unconventional weapons programs cannot proceed without financial resources. It is expensive to develop production capabilities for such weapons. Although chemical and biological agents may be "poor man's atomic bombs," the available evidence suggests that only the rich can afford to develop the production facilities needed for militarily-significant capabilities. Iraq, for example, probably invested hundreds of millions of dollars in its chemical weapons program, apparently sufficient to provide a production capability of only 1,000 tons per year. By making it difficult to acquire and produce unconventional weapons, costs can be increased and programs delayed. This may accomplish a great many

desired results, even if the results are less than perfect.

Second, a lack of regulations was not the main constraint on U.S. efforts to stop Iraq's unconventional weapons programs. When a decision was made to interfere with Iraqi activities, action proceeded quickly and decisively. If it was not possible to prevent particular exports, steps were taken to close legal loopholes. This suggests that when insufficient efforts were made to act against Iraq, the problems arose primarily from policy choices, not legal constraints.

Third, unless other countries implement controls as tough as those in the United States, it is not possible to stop proliferation. This suggests future problems. Typical are the problems posed by West Germany. Although West Germany has taken steps to strengthen export controls, the sorry performance of the Bonn government during the course of the past decade provides grave reason to be skeptical of its long-term good intentions. Should the West Germans once again choose to look the other way when its companies engage in illicit activities, even the most rigorous export controls in the United States will be useless.

Finally, there are limits to export controls. As the technical sophistication of countries producing unconventional weapons increases, the technology they seek from countries like the United States becomes increasingly remote from the end product. This was demonstrated by Iraq's efforts to produce precursor chemicals, as well as by its efforts to produce the chemicals needed to make the precursors. Eventually, the link with the final product becomes so remote that it is virtually impossible to rely on export controls as a primary tool.

**Testimony of Jerry Kowalsky before the House Committee on  
Banking, Finance and Urban Affairs on April 9, 1991**

**Overview of CSI**

Founded in 1969, CSI Technologies Inc. is a San Marcos, CA manufacturer of custom designed high voltage pulse and filter capacitors. A capacitor is an electronic component that can, amongst other things, accumulate, store and deliver intense pulses of electricity. Typical applications include radar, TV and radio transmitters, heart defibrillators, medical lasers and impulse test equipment. While most of CSI's capacitors are used in medical and industrial applications, some are used in military equipment such as Laser rangefinders.

**International Distribution**

CSI not only markets its products throughout the United States, but also in most major international markets. CSI is represented in these markets by local agents, Walmore Electronics being our UK agent. When I came to CSI in 1985 there was an order in house from the Baghdad electric utility for capacitors of the type commonly used for basic electrical research. Presumably, it was Iraq's experience with CSI at that time that led them to approach us in 1988.

**Function of Capacitor**

A modern nuclear weapon consists of a spherical mass of fissionable material encased by a sphere of conventional high explosives. The triggering system consists of a specially designed pulse capacitor, a krytron switch and an array of detonators inbedded in the high explosive. Typically, the krytron switch closes on command from an altitude (pressure) switch permitting the electricity stored in the capacitor to activate the detonators in unison. The high explosives then compress the fissionable material until the critical mass is reached.

**Initial Inquiry**

On Sept. 6, 1988 a fax was received from CSI's London agent transmitting an inquiry from a company called European Manufacturing Center (Euromac) "acting for an Iraqi delegation". The technical specification supplied exactly matched what I knew from prior experience to be that of a capacitor for a nuclear warhead trigger circuit. I immediately notified contacts at the CIA and the Customs Service. Special Agent Daniel Supnick requested that I make an attractive proposal to Euromac and do everything possible to get a purchase order. Thus, the sting operation known as "Operation Quarry" was born. As the issue was primarily one of export control, the CIA's role was generally passive during the sting.

**Nov. 1988 Meeting**

On Nov. 2, 1988 I met with Michael Hand, a British national, and Euromac's director of exports and sales, in the offices of

CSI's London agent. Hand went into great detail to impress us with the volume of materials procured by Euromac for their sole customer-the Iraqi government. He claimed that Euromac had processed up to a billion dollars per month during the war with Iran and that even though the war had ended, a billion dollars per year was still being procured. He said Euromac had offices in the UK, Italy and New Jersey. He explained that while there was an official Iraqi procurement organization in the UK called TDG, whenever Iraq had a significant requirement they contacted Euromac. (Much later it became public that TDG was also a major player in Iraq's clandestine war procurement network.) Further, he commented that Euromac had procured large quantities of explosion proof switches from a California company called Custom Control Sensors. Also, he asked me if we could supply electronic connectors. During the meeting Hand received a call on his cellular telephone asking him to locate 500,000 ball bearings. When I asked Hand who was his customer within Iraq for the capacitors, he replied "Sorg." (Actually this is an Iraqi contraction of "State Organization of...."). Hand also implied that Euromac's managing director, Ali Daghir, was involved in many activities that Hand was not privy to and was, in fact, close to the highest levels of the Iraqi government.

#### Jan. 1989 Aborted Meeting

As Michael Hand had no technical background, some unresolved technical issues were not settled at the meeting and on Jan.4, 1989 I was invited to attend a meeting later that month with Iraqi engineers in London. On Jan. 26 & 27, I was in London, but the Iraqis did not show. On Feb. 6 they did arrive and our London agent was summoned to meet with them at Euromac's offices. At the conclusion of the meeting a fax was sent to me by Hand resolving some, but not all of the technical questions.

#### Washington Post Article

On April 17, 1989, shortly after an article was published in the Washington Post speculating on the existence of an Iraqi nuclear weapons program, we received notification that Mike Hand had left Euromac and that the capacitor project had been terminated. I called Mike Hand at his home and learned that his replacement at Euromac was Jeanine Speckman (a French national) and that he was joining another import/export company. I called her and she told me she would be visiting Baghdad soon and would try to find out what was going on. On June 7, we received a telex from her with what appeared to be a new inquiry.

In this same time period, a separate attempt by Iraq to obtain the nuclear capacitors through a direct order from the Ministry of Higher Education placed on Maxwell Laboratories of San Diego was aborted. Maxwell had become suspicious and notified Customs just before shipment.

On July 13, Speckman sent a fax stating "As you know this offer has been outstanding for several months and there is still

a final query which the client has not clarified yet. However in spite of this, client has just placed a firm order with us for 100 of these capacitors. In view of the technical query still outstanding, our managing director would prefer that this order is placed directly with you and is wondering if you would like to take it over and perhaps visit this client (ALQAQAA) in order to obtain clarification - there could be a bigger order in the pipe line later." I responded that a visit to Baghdad was not practical, and suggested instead that a meeting be held in London during September or October.

At that time the name Al Qaqaa meant nothing to me. It later was revealed to be the site of a large, secret military research facility and the location of a huge explosion on August 17, 1989 that killed as many as 700 people including Egyptian and, perhaps, North Korean technicians. It also was there that Farzad Bazoft, a reporter for the British newspaper The Observer, and his driver Daphne Parish, were arrested for alleged spying. On March 15, 1990 Bazoft was hung while Parish was unexpectedly freed a few days before the invasion of Kuwait though she had been sentenced to 15 years.

#### Sept. 1989 Meeting

Eventually, Euromac and the Iraqis agreed to a September meeting in London to resolve the outstanding technical issues. I flew to London meeting Special Agent Supnick there. Early on Sept. 11, after Supnick (posing as a CSI employee) installed a tape recorder, we walked to the Cavendish Hotel for the meeting under the surveillance of at least four British agents. In the lobby we first met Jeanine Speckman and Ali Daghir and were shortly joined by two Iraqi engineers, Karim Dhaidas Omran and Wallid Issa Ahmad, from Al-Qaqaa. The meeting was held in the hotel's restaurant and took about two hours. Whenever a probing question was asked regarding the application, the Iraqis would lapse into an Arabic discussion before an answer was given. A translation later had Ali Daghir saying "you see, Americans are naive, stupid." During the course of the meeting we learned that the Iraqis wanted four types of capacitors three of which were fairly conventional pulse capacitors. All capacitors had to meet military specifications for humidity, shock and vibration. The fourth had tighter specifications and high reliability for a single shot application. Regarding delivery, the Iraqis said the parts were urgently needed. My impression from their attitude was that Iraq's nuclear program was more advanced than many Western experts had speculated. A contract was signed calling for 15 each of the less critical parts and 40 of the fourth (detonator) design. The total was \$10,500 with delivery to be 6-8 weeks. We were advised the funds were already at Iraq's London embassy. No mention of BNL was ever made. A long discussion regarding end use finished with Ali Daghir saying the parts would be used for air conditioners. He alluded to having used this cover in a prior transaction. Further, Daghir, an Iraqi national, said "We don't want you to include a single dollar for us. I am an English

company, but I am an Iraqi. If I profit my country, it is for me a profit." As the meeting adjourned, I was asked by Ali Daghir if CSI would be willing to supply a turnkey capacitor plant in Iraq substantiating rumors regarding Iraq's goal of independence from Western suppliers.

#### TMI

By coincidence, while I was in London for the meeting with Euromac, our British agent received an inquiry for the detonator capacitors from another export organization, Test and Measurements Limited. Nothing developed from this inquiry as the originator was involved in a serious auto accident shortly after the initial contact.

#### Proposed Visit by Iraqi Engineers

On Sept. 26, 1989 Speckman sent a fax saying the Iraqis wanted to send engineers to CSI to witness the testing of the capacitors before shipment. We replied this was OK.

On Nov. 14 Ali Daghir sent a fax to Dan Supnick saying "This is to advise you that the Client would like to see you (or Mr Jerry Kowalsky) urgently between November 25- December 5 in Baghdad to discuss the order and other future business." We advised them we would try to arrange the trip.

Manufacture of the parts was completed on Jan. 3, 1990 and on Jan. 11 a telex was received directly from Al Qaqaa saying their engineers would not visit CSI and again asking for a visit to Baghdad to discuss some new inquiries.

An end user certificate arrived Feb. 6 from the School of Applied Sciences, University of Baghdad, stating the parts were for the sole use in a CO2 laser system.

#### Euromac-Ship to Iraq

On Feb. 21 Euromac changed the shipping instructions from London to direct to Iraq. We now had a serious problem as the parts had to be shipped to the UK if the conspirators were to be arrested. Thus, we replied a shipment to Iraq was not possible as it would expose CSI to problems with US authorities.

Finally, on March 13 we were authorized by Euromac to ship the parts to them in London. A few days earlier a duplicate set of disabled parts had been shipped to British Customs. On March 19 the operational parts left Los Angeles arriving at Heathrow on March 20. After clearing British customs, a Euromac employee delivered them to Iraqi airlines the morning of March 28. When an attempt was made to load the parts aboard the Baghdad flight, the shipment was confiscated and the Euromac conspirators were arrested. Their trial is now scheduled for April 22 in London. Omar Latif, the Iraqi Airlines station agent was immediately expelled.

### Arms Proliferation

"The Invisible Superpower" is the title on an article published in the June 1990 issue of Seapower. The article continues "The Cold War may indeed be over, but another war already has started. It is a war waged in the shadows, by enemies unseen and often unknown." "The proliferation of nuclear, chemical, and biological weapons-and of sophisticated guidance systems for those weapons is creating a number of incipient Third World superpowers capable of conducting military operations on a scale previously reserved for the U.S., the Soviet Union, and their closest industrial allies. By the end of this decade, a major conflict involving Brazil, Iraq, Pakistan, South Africa, Taiwan or Turkey would risk significant, and possibly nuclear, proliferation."

Scientific American, August 1990..."Third World Ballistic Missiles"... "The spread of strategic weapons to unstable regions greatly increases the likelihood that they will be used. We cannot reverse the process and so must learn to manage its consequences." In chilling detail, the article describes the missile programs of 13 Third World countries including Iraq, Syria, Libya and Iran. Clearly, "the genie is out of the bottle" and the best that can be hoped for is a slowing down of further proliferation of weapons of mass destruction. As the United States is still the world leader in many areas of military high technology, US export control procedures are a vital element in maintaining world peace.

### US Laws

The basic laws and regulations controlling exports are reasonable. Unfortunately, the fine line between stopping illegal exports while promoting legitimate exports makes enforcement very difficult. Throughout my involvement with the sting the performance of all of the customs agents, both American and British, with whom I had contact with was exemplary. In particular, the determination and skill of Special Agent Daniel Supnick was vital to the successful conclusion of the sting.

### Enforcement Problems

Frequently businessmen will not ask questions whose answers might block a sale. The division of responsibility amongst the Customs Service, Commerce and State complicates the process. At the same time dual uses of a given product makes it difficult for export control authorities to exercise independent judgement. In many cases the Government can not afford to have a staff of technical experts qualified to make these judgements. Perhaps a group of retired professionals would be useful along the lines of the Dept. of Commerce's "Score" small business assistance organization. There is also a problem keeping all US businesses actively exporting informed with US export regulations. While they are thorough, they do not make easy reading. Virtually all industries have trade organizations such as the Electronic Industries Assoc. and American Electronics Assoc. who would



gladly assist the government by keeping their members informed of current policy.

In November of 1990 I was told in detail by an American engineer how he had actively sought and obtained an order from Iraq after a British company turned down the order for precision electronic parts that could have improved the accuracy of Iraq's ballistic missiles. He had advised representatives of the Department of Commerce and State of the contract, but did not make an issue of the fact that it was irrational for an order from an electric utility to have a requirement for operation at 350,000 feet (70 miles).

#### The Future

I believe recent events have given the United States an unusual opportunity to promote world wide arms reduction which we should not let pass.

To be successful we need a multi-faceted approach aimed at cutting off both the supply and demand for weapons of mass-destruction. The basic elements should be:

1. Completion of our ongoing disarmament negotiations with the USSR.
2. Promotion of regional agreements to reduce the perceived need by Third World nations for offensive armaments.
3. Development of incentives to reduce the attractiveness of armaments as a vehicle for earning of hard currency.

#### Major Powers

Clearly as the US, USSR, Great Britain, France and China are the major suppliers of armaments, any meaningful disarmament must first have their agreement on a coordinated plan of action.

#### Third World

Though many third world countries can barely feed their population, their limited resources are wasted on unneeded armaments. Ballistic missiles are looked upon as status symbols of national manhood in many nations. Others consider their weapons factories to be primary sources of exports to gain hard currencies. A coordinated effort amongst the major powers is necessary to change this unfortunate pattern. Use of foreign aid and preferential trade arrangements by major powers could be used as incentives to wean third world countries from weapons production.

*Ferry Kowalsky*  
4-4-91

**SerVaas**  
INCORPORATED

STATEMENT OF DR. BEURT R. SERVAAS  
PRESIDENT OF SERVAAS, INC.

Before The

COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS  
U.S. HOUSE OF REPRESENTATIVES  
ONE HUNDRED SECOND CONGRESS

APRIL 9, 1991

My name is Dr. Beurt R. SerVaas, and I am the President and owner of SerVaas, Inc., a diversified industrial company whose executive offices are located at 1000 Waterway Blvd., Indianapolis, IN 46202. My Curriculum Vitae is appended for the record. I am pleased to provide your committee any assistance into its investigation of Banca Nazionale del Lavoro (BNL) and its relationship to Iraq. I appreciate your invitation to share with you our experiences with the Iraqis and BNL. For purposes of organization, I will follow the outline suggested in your letter of March 29, 1991.

1. You requested a history of Bridgeport Brass Corporation's and SerVaas, Inc.'s dealings with Iraq, including the brass project in Iraq. As background, Bridgeport Brass Corporation has been located in Indianapolis for more than 50 years and has conducted the business of manufacture and sale of brass sheet, tube, rod and wire. In 1986, Bridgeport Brass was in serious financial trouble. Union and management representatives discussed with me the danger that the company would fail, leading to a serious loss of jobs and a substantially adverse impact on the Indianapolis economy. That year SerVaas, Inc. acquired controlling interest of the stock of Bridgeport Brass Corporation and set about revitalizing that company as an independently owned brass producer. Most of the brass companies in the United States are substantially larger than Bridgeport and many of them are part of publicly owned and very well

financed companies. Nevertheless, we were very successful in our efforts to revitalize Bridgeport Brass and provide a secure opportunity for its employees.

In February of 1988, Bridgeport Brass was approached by representatives of Matrix-Churchill Corporation of Cleveland, Ohio, requesting an inspection of the Bridgeport Brass facilities. We were told that Matrix-Churchill represented the Government of Iraq and that it was interested in viewing Bridgeport and other brass manufacturers regarding a possible contract for the construction of a brass facility in Iraq. Because we were not familiar with the company, we ran a Dun & Bradstreet report on Matrix-Churchill. I have attached a copy of that Dun & Bradstreet report for your records. As you will note, the report indicates that Matrix-Churchill was a U.S. corporation started in 1967 with a good credit history and approximately \$7 million of annual sales. Its business was described as a wholesaler of high precision industrial machinery. Dun & Bradstreet also reported that Matrix-Churchill was a subsidiary of TI Group, PLC, of Birmingham, England, a company that had been founded in 1919 and had more than one hundred other subsidiaries. Based upon that Dun & Bradstreet report, we responded favorably to the request to inspect our facilities at Bridgeport Brass.

We then had visits by Mr. Sam Naman, an engineer with Matrix-Churchill's Cleveland office, and subsequently by Mr. Safa Al-Habobi, who represented himself as Chairman of one of the British affiliates of Matrix-Churchill Corporation, called Matrix-Churchill, Limited. We received a set of requirements for proposed facilities that appeared to have also been sent to other brass companies that Matrix-Churchill were interviewing on behalf of Iraq. Since this seemed like a project that could reasonably be undertaken by our staff at Bridgeport, we prepared certain drawings and estimates, which were submitted to Matrix-Churchill's Cleveland office for transmission to its principal, Iraq.

At that time, our understanding was that a full and complete brass

facility was being sought by the Iraqi government. We proposed to build such a plant for \$115,000,000. In order to get a better understanding of the needs of the potential customer, Bridgeport sent a plant engineer and a consultant to visit with the appropriate engineering staff in Iraq. We did this at the end of April of 1988. When they were in Iraq, our representatives learned that we had completely misunderstood the needs of the Iraqi government, because they already had a full and exceptionally modern brass facility, built in stages by an Austrian concern starting in 1984, which was capable of producing billets, cakes, sheets, strip, rod, tube and wire from virgin materials. Our staff members concluded that a far more modest facility was needed for the purpose of utilization of the substantial amounts of scrap brass that was available in Iraq. This scrap consisted of normal wire, cable, tube, radiators and also shell casings from the Iraq-Iran War. I have attached some pictures of that scrap. We were informed that the shell casings had either been made in the Soviet Union or had been made in Iraq to Soviet specifications, and that they contained silicon.

It was obvious to our experts that brass scrap containing silicon could not be utilized in the production of commercial brass production, and could not be sold on the world market. The key part of the Iraqi needs, therefore, was to be able to remove the silicon from the shell casings that had been generated during its war efforts, in order to provide Iraq with brass scrap pure enough to run through its existing brass facilities and be made into commercially usable products for sale on the world market. If the purpose of the Iraq project were to produce more shell casings from the scrap casings, all they had to do was melt them down as they were and use the existing Austrian facility. It was explained to us that Iraq was looking to a long term project of utilizing this substantial amount of scrap, estimated to be worth several hundred million, for the purpose of supplementing its oil revenues through the sale of commercial products in the peacetime economy that was anticipated following the termination of the war with Iran. Following our visit to the Iraqi facilities and discussion there with Iraqi engineers, we made a substantially revised proposal, limiting the proposed facility

to a scrap reclamation project only.

We were led to believe by representatives of Matrix-Churchill that they were soliciting bids from other potential contractors. Engineering correspondence followed in which we refined some of the ideas we had expressed, and tried to define what we believed were our capabilities. We noticed a significant increase in interest and activity in August of 1988, at the time of the informal ceasefire between Iraq and Iran. We assumed that until that time, Iraq was not in a position to proceed vigorously with this project. We were informed by Matrix-Churchill, as agent for the government of Iraq, that a delegation of officials from the Ministry of Industry's Al-Shaheed Factory, which was the name of the existing brass plant, would come to the United States to visit and negotiate a contract with us in mid-September. The Iraqi delegation did, in fact, arrive and we reached agreement on the terms of the contract, which was signed on September 10, 1988. We have recently heard this Iraqi governmental agency called the "Ministry of Industry and Military Production." Our contract and all our correspondence referred to the contractor as the "Ministry of Industry." In our dealings with this agency, the name "Military Production" was not used.

We were told that the government of Iraq had to approve the terms and conditions of the contract that had been negotiated by the parties. Certain technical issues were raised by the negotiating team while it was still in the United States, and some revisions to the contract were made. The contract was re-executed on October 2, 1988. Even at that time, we had not sent a substantial team of experts to investigate the major problems and challenges involved in this project. A prerequisite to the execution of the contract, however, was our company's being able to demonstrate that we could, in effect, demilitarize the scrap by removing the silicon from the shell casings, so that the finished products could be sold commercially in the worldwide brass market. The Iraqis sent 10,000 lbs. of crushed brass shell casings to the U.S. After extensive tests, we were able to demonstrate a method to remove the silicon from the scrap brass so that the product came within commercial ASTM and DIN specifications.

Metals meeting those purity specifications can be readily sold anywhere in the Western world. In a way, we believed that our project was one of turning swords into plowshares.

The government of Iraq subsequently approved the contract. We began doing the necessary engineering and refining the concepts of the contract. Our responsibility was to design the scrap refinery, specify and order the equipment, oversee its installation and conduct the initial training of the staff. The Iraqi Ministry of Industry was responsible for the actual construction of the physical facility, including foundations, physical installation of equipment, utilities and roof. We proceeded to complete the engineering, ordering and shipping of equipment to Iraq. All equipment necessary for the construction of this facility was shipped on or before August 2, 1990, and all but a very minute portion had, in fact, arrived at the plant site by that date. The Iraqi Ministry of Industry was very slow in completing its portion of the tasks, namely, the completion of the roof of the facility, so that the equipment could be installed. The Iraqi delay was frustrating to us because a completed facility was necessary so we could demonstrate our performance and collect major portions of our payments due under our contract. By August 2, 1990, we had collected approximately \$24 million out of the \$40 million total contract price. We had completed virtually all of our obligations under the contract, other than installation of the equipment and training of the Iraqi personnel.

We had two of our personnel located in Iraq at the time of the invasion of Kuwait. We were fortunate that each of them was subsequently able to get out of the country. These two men were aided by the U.S. Charge D'Affairs, Bill Wilson, and resided in Ambassador April Glaspie's residence until they were released.

Since August 2, 1990, we have been cooperating and assisting various U.S. Intelligence and military agencies with the knowledge and experience we gained in our endeavors in Iraq.

You inquired regarding our relationships and knowledge of

**Matrix-Churchill:**

a. Our first contact from Matrix-Churchill was a phone call from Mr. Sam Naman in Cleveland to the plant manager of Bridgeport Brass. Mr. Naman wanted an inspection of our facilities and we were told that Matrix-Churchill was representing the Government of Iraq for the purpose of investigating various possible contractors for the construction of a commercial brass facility in Iraq. It is our understanding that inquiries were made of a number of brass manufacturing companies, both in the United States and throughout the world. Subsequently, Mr. Al-Habobi from their English affiliate, met with us. His purpose seemed to be to ensure that we did not go around Matrix-Churchill to its client. We were admonished that in any contractual relationship, Matrix-Churchill expected a fee of 5% of the total contract price for engineering and client services. This did not seem like an unusual fee for a representative, if that representative was used for qualifying potential bidders and if that representative would continue to be of further assistance in carrying out the contract. As I have noted previously, we had ordered a Dun & Bradstreet check of Matrix-Churchill to learn what we could about Matrix-Churchill. We learned that it had been incorporated in the United States for more than 20 years, that it was in the engineering and machine tool business, and that it was a subsidiary of a venerable British company. People with whom we spoke at the Matrix-Churchill office in Cleveland and in both London and Coventry, England, appeared to us to be people with substantial engineering experience, and there was no reason to believe that Matrix-Churchill was other than what it purported to be.

b. At no time did any Matrix employee indicate that he was, in fact, employed by the government of Iraq or that Matrix-Churchill was an instrumentality of the government of Iraq. Of course, we were aware that Mr. Naman in Cleveland, and Mr. Al-Habobi were of Iraqi origin, but we assumed that

that was a qualifying reason why Matrix-Churchill was selected over other international engineering companies to conduct this search. We were informed that Matrix-Churchill was an independent contractor, with the Government of Iraq as one of its clients.

3. You requested an overview of our relationship with BNL.

a. The original contract with the Ministry of Industry executed in September of 1988, and revised on October 2, 1988, provided that if the Iraqi government approved the contract, the Ministry of Industry was to open "an irrevocable letter of credit with a financial institution having an office or branch in the United States of America." The only other limitation on the letter of credit was that the financial institution's obligations were to be rated "B" or better by a rating service of recognized national standing at the time of the issuance of the letter of credit. At no time during the negotiations leading up to the execution of this contract was BNL mentioned. In fact, the terms in the contract regarding the qualification of the bank issuing the letter of credit were proposed by our counsel, based upon standard legal qualifications for contracts of any international nature. So long as the letter of credit met the terms and conditions of our contract, we had no right to select, designate or refuse to accept a letter of credit proffered by the Ministry of Industry. We first learned of BNL in mid-November of 1988. We received a direct call from an officer of BNL in Atlanta informing us that its correspondent, the Central Bank of Iraq, had issued an irrevocable letter of credit in favor of SerVaas, Inc. in the amount of \$40,602,000 U.S. The BNL executive indicated that the Central Bank of Iraq had requested that BNL confirm the letter of credit and contract with SerVaas, Inc. that if all of the terms and conditions of the letter of credit were met, BNL would duly honor the payment terms under that letter. Subsequently, we received that confirmation dated November 21, 1988.



b. Prior to our receiving the phone call from BNL and the receipt of the BNL confirmation of the letter of credit issued by the Central Bank of Iraq, neither Matrix-Churchill nor any of the representatives of the Ministry of Industry, nor anyone else mentioned BNL to us. Subsequent to the issuance of the letter of credit and as part of normal business relationship that developed from our contract, we learned that Matrix-Churchill and a number of the people with whom we worked at the Al-Shaheed Factory were aware that the Central Bank of Iraq's letter of credit was confirmed through BNL. In fact, we and the Ministry of Industry negotiated several modifications to the Central Bank of Iraq's letter of credit, and thereafter these modifications appeared as modifications confirmed by BNL. As a matter of general curiosity about BNL, since we had never dealt with that bank before, we did inquire from the BNL officers with whom we worked about other businesses that were receiving similar letters of credit confirmations for business activities in Iraq and were told that BNL was providing similar confirmations under contracts being performed by General Motors, Caterpillar Tractor and other major corporations.

c. When we were first contacted by BNL and received the BNL letter of credit confirmation, we did make appropriate inquiries about the bank because, as I have said, we had not had prior business activities with BNL. We learned that it was the largest state-owned bank in Italy with a worldwide banking presence. We learned that it had offices in both New York and Atlanta. At that point, we had no further doubt as to the fact that BNL met the criteria that we had established in the contract and that its confirmation constituted a letter of credit by a bank with a "B" or better rating with a United States branch.

d. You asked whether we had any indication that BNL was engaged in any criminal activity. The answer is no. Before we accepted the confirmation of the letter of credit by BNL's branch in Atlanta, we sent one of our staff there to visit with

the officer with whom he had been conversing by phone. It was at that time that we were told that this branch was acting in a similar capacity for General Motors, and other major United States companies, as well as grain sales. Based upon that visit and our investigation of the worldwide status of BNL, we had no reason to believe that these officers were not fully authorized to provide the confirmations to us. Likewise, our contract required us to establish performance guarantees through bank guarantees. The Ministry of Industry required that a \$10 million performance guarantee be established in its favor with the Rafidain Bank of Iraq. Our employees discussed this performance guarantee with BNL officers in Atlanta, who were familiar with this procedure. They indicated it was also in other similar contracts with Iraq. We negotiated for BNL's providing that bank guarantee to the Rafidain Bank. Based upon the credit worthiness of our companies, the experience of our engineering staff and the nature of the contracts with the Ministry of Industry, BNL provided this guarantee. Of course, we performed all our obligations, so the guarantee was not needed. All of this appeared to be perfectly above board and beyond reproach.

Let me say that as a director of a major bank in Indianapolis, and as a person who has had many banking relationships over the years, I consider myself to be well informed about banking procedures. So, I may say unequivocally that we had no indication at any time that BNL officers were not acting in a fully authorized manner until August of 1989 when we learned through the newspapers of the U.S. and Italian governments' investigation of BNL. Until that time, our draw requests had been honored in a timely fashion.

e. The subsequent BNL scandal did influence our scrap brass project because we had a draw request on our letter of credit on file at BNL in August of 1989. Previously, we had timely payments on our draw requests because of our accurate paperwork and our compliance with the requirements of the letter of

credit. We were told by BNL officers in August, 1989, however, that bank auditors were involved at BNL and that our request would have to be confirmed by the Italian headquarters of BNL before payment could be made. Eventually, after full investigation of the situation and careful scrutiny of our documentation, I am pleased to say, the BNL authorities recognized the validity of its confirmation of the Central Bank of Iraq's letter of credit and agreed that we had fully complied with the terms and conditions of that draw request.

4. U.S.-Iraq Business Forum

a. At a meeting I attended that included former Ambassador Marshall Wiley, we discussed the project that our company had undertaken in Iraq. This was in late January or early February of 1989. Soon thereafter Ambassador Wiley sent some further information to me and solicited our membership in the Forum. We learned that the Forum had been created in 1984 when diplomatic relationships between Iraq and the United States resumed and that the Forum membership included a number of major American corporations, including General Motors, Exxon, Chrysler, Westinghouse and PepsiCo. Significant law firms such as Sidley & Austin and Paul, Hastings, Janofsky & Walker were active in the Forum, together with many major American banks. It appeared to us that the Forum would provide us with information and updates that could be helpful to us in carrying out our contractual obligations. Because we were a relatively small company when compared with the very large corporations that were members of the U.S.-Iraq Business Forum, we were not of sufficient stature to be invited to participate in some of the major activities of the Forum, including the meetings which were set up between Sadaam Hussein and the large corporate members of the Forum.

b. Our annual membership in the Forum expires May 4, 1991 but it is our understanding that the Forum is no longer active.

5. You asked about my thoughts on why Sadaam Hussein invaded Kuwait. Of course, I think that we can all agree that Sadaam Hussein has many of the megalomania tendencies of other classic absolute dictators. These people lose perspective and come to believe that they must destroy or at least neutralize their neighbors so long as no one deters them. More particularly, I believe that the invasion of Kuwait was precipitated by the continuing financial problems of Iraq. Its 8-year war with Iraq drained the financial resources of the country, and certainly limited its exploitation of its vast oil wealth. During that war, Iraq incurred enormous debts to its Arab neighbors, and in particular, Kuwait. Of course, I am not privy to the understandings between these countries and the basis of the Kuwait advancement of funds to Iraq to conduct its war against Iran. Nevertheless, it has been widely reported that Sadaam Hussein, rightfully or wrongfully, believed that the billions of dollars he received from Kuwait should not have been considered to be a loan, but should have been considered to have been payment for Iraq's standing up to Iran.

In the Spring of 1990, we began to recognize that the Ministry of Industry was not honoring the timeframes that were part of our contract. In particular, the Ministry of Industry had a responsibility to put a roof over the facilities, and inexplicable delay after delay occurred in its putting on that roof. We were led to believe this delay was caused by the lack of funds to erect such a facility. The problems with BNL no doubt further prevented Iraq from being able to convince other governments and business enterprises in the world to provide products and materials necessary for the completion of a myriad of commercial projects that were undertaken by Iraq, such as ours. I have a belief that Sadaam Hussein concluded that his country was being choked off financially and that the only financial solution to his problem was to take over and loot Kuwait. Like other dictators, he undoubtedly made the assumption that the rest of the world would sit idly by. Clearly, he made a wrong assumption.

6. You asked about any observations I may have regarding the workings of the Iraqi networks based upon my intelligence community background. To me it is clear that although Iraq is a third world country with sparse infrastructure, it is very rich in natural resources. Those resources are not just oil, but also a substantial agricultural area. Iraq did undertake a major rebuilding effort in 1988 following eight years of devastating war. It counted on the rest of the world's giving it credit for its vast resources against future payments. But Iraq was soon living far beyond its means. A country can only live for a limited period of time in those circumstances. It can live on borrowed money, mortgaging its future, but only for so long. We carefully investigated and assured ourselves that all of the services and products we provided were well within the existing U.S. export restrictions and rules. For example, the furnaces that were purchased for the brass plant could only generate about 1200'C, well below any range that would have a military application. Our firm received a confirmation of a letter of credit by a major international bank. On site, the Iraqi people we dealt with were hard-working engineering-construction personnel. As I said, our particular project was one we felt was instrumental in converting the war scrap of Iraq, that had been built up during the Iranian War into products whose metallurgy met the Western commercial standards necessary to produce hard currency for the country. I have attached some pictures to illustrate this text. If the Iraqi government had a secret military agenda, it was well hidden behind a clearly peaceful plan to rebuild an economy devastated by war and to feed its people. The Iraqi quarrel with the Italian government, its chief financial intermediary, arising out of the BNL scandal, reverberated for months throughout the world banking community. It would seem in retrospect to have triggered a financial crisis wherein not only rebuilding Iraq was threatened, but even Sadaam Hussein's ability to pay his army. It would appear that the move into Kuwait was a reflex action growing from that crisis.

7. You asked about my comments on future U.S.-Iraq relations.

When Arab legions and the Ottoman Turks controlled the Middle East, there was "peace" in the area in the sense that the then Supreme Sultan could always put down or overcome local insurrections and territorial disputes.

When the latest conquerors, the Europeans, pulled out after World War II, they left fragments of former empires, some in the image of their former colonies and others, like Iraq, composed of three disparate provinces of the Ottoman Empire, the provinces of Mosul (Kurds and Christians), Baghdad (Sunni), and Basra (Shiite).

Now there is no empire to settle the quarrels; only coalitions to enforce a consensus that a wrong must be righted.

But, why not! Coalitions have settled modern wars since the 18th century. Coalitions settled colonial wars; coalitions settled the European quarrels of World War I and II. Given the tribal, ethnic and religious differences of the region overlaid with the extreme economic disparity of the political entities, and complicated by territorial disputes and the personal egos and enmities of the military, religious and political leaders, I do not see how "peace" can be imposed.

What can be achieved under U.S. leadership is the preservation of a nucleus for future coalitions that could be formed from then affected states to either arrest or mediate a new challenge in the area. The U.N. will continue to be a party to future coalition action, and our diplomacy should quickly react to this new reality.

In short, we should attempt to build respect and cordiality throughout the Middle East but remain free to build such coalitions as may be necessary to preserve the "peace."

Respectfully Submitted,

  
Beurt SerVaas  
President

Attachments

## Beurt SerVaas, Med.Sc.D.

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### *Chairman of the Board*

**SerVaas**  
INCORPORATED

### *Subsidiary Companies:*

The Curtis Publishing Company – magazine, book publishing; licensing  
 Curtis International, Ltd. – foreign trade – South America, Far East  
 Curtis International Europe, Inc. – foreign trade – Europe  
 Curtis Management Group – personality licensing  
 Curtis TradeGroup, Inc. – import/export trading and management  
 Carpenter Manufacturing, Inc. – school buses  
 Franklin Power Products, Inc. – truck engine manufacturing  
 Findlay Diesel – fuel injection systems  
 Central Precision Ltd. – automotive and truck engine manufacturing  
 Marine Drive Systems, Inc. – manufacturer of stern drive systems  
 Lake City Forge, Inc. – engine, gear, transmission parts  
 Northland Precision Manufacturing, Inc. – tool and die  
 SerVaas Laboratories, Inc. – manufacturer of cleaning products  
 SerVaas Management, Inc. – construction, building management  
 SerVaas Engineering, Inc. – plant engineering  
 U.S. Rubber Reclaiming, Inc. – rubber refining  
 Healthcare Technologies, Inc. – pharmaceutical licensing  
 Manufacturing Chemists – pharmaceutical manufacturing  
 Waterway Capital Corp – wholesale distribution, air freight  
 Indiana Business Magazine, Inc. – specialty magazines  
 Industrial Communication Engineers, Ltd. – electronic components

### *President of:*

Indianapolis City Council  
*(The legislature for greater Indianapolis)*

### *Chairman of:*

U.S. – Polish Economic Council  
*(Joint Federation of the U.S. and Polish Chambers of Commerce)*

### *A member of the Board of Directors of:*

Banc One Indiana  
 Indiana Public Health Foundation  
 Indianapolis Entrepreneurship Academy  
 Robert Schuller Ministries *(The Hour of Power)*  
 Chairman, The National Institute for Fitness & Sport  
 The Council for National Policy  
 The Hudson Institute

### *Former Director of:*

American Legion *(National Foreign Relations Commission)*  
 Goodwill Industries – Grolier, Inc.  
 Indiana Commission for Higher Education  
 Indiana State Board of Health  
 KCOM *(Medical College)*  
 National League of Nurses

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**Education:**

- 1925 – 1938 Public School 70; Shortridge High School, graduated 1937 High Honor Roll  
 1938 – 1939 University of Mexico, Mexico City, undergraduate  
 1939 – 1940 Indiana University, AB chemistry, history and Spanish  
 1941 Purdue University, du Pont scholar, graduate chemistry  
 1962 – 1970 Indiana University School of Medicine, Doctor of Medical Science

**Military Career:**

- 1941 – 1945 Officer, United States Navy; American Intelligence Command; Office of Strategic Services (*China Theatre*).  
 1946 Returned to China in connection with the mission of General George C. Marshall and the resumption of hostilities between the Nationalists and the Communists.

**Personal Information:**

Born May 7, 1919, in Indianapolis, Indiana of Dutch ancestry  
 Married: Cory Synhorst, January, 1950  
 Five children: Eric, Kristin, Joan, Paul, Amy  
 Member of Second Presbyterian Church  
 Business Address: 1000 Waterway Boulevard, Indianapolis, IN 46202  
 Home Address: 2525 West 44th Street, Indianapolis, IN 46208

**Honors and Awards:**

- |  |   |
|--|---|
| Eagle Scout – 1935   | Doctor of Business Management ( <i>Indiana Institute of Technology</i> ) – 1973 |
| Amateur Radio W9WV0 – 1935                                 | Doctor of Humane Letters ( <i>Butler University</i> ) – 1974                    |
| Phi Delta Kappa Scholastic Honorary                        | The National Horatio Alger Award for 1980                                       |
| Bronze Star Medal ( <i>World War II</i> )                  | Sagamore of the Wabash – 1981   |
| Army Commendation Medal ( <i>World War II</i> )            | Doctor of Laws ( <i>University of New England</i> ) – 1982                      |
| Golden Plate Award, American Academy of Achievement – 1973 | Doctor of Laws ( <i>Indiana State University</i> ) – 1984                       |

**A Member Of:**

- |   |  |
|---|--|
| American Academy of Achievement             | Indianapolis Athletic Club                   |
| Association of American Medical Colleges    | Indianapolis Press Club                      |
| American Legion                             | Jordan YMCA                                  |
| Amateur Trapshooting Association of America | Marion County & Indiana Historical Societies |
| Boy Scout National Program Commitee         | Meridian Hills Country Club                  |
| Columbia Club                               | National Association of Manufacturers        |
| Delta Upsilon                               | Newcomen Society of North America            |
| Economic Club of Indianapolis               | U.S. Naval Reserve                           |
| English-Speaking Union                      | World Future Society                         |
| "500" Festival Association                  | World Trade Center of Indianapolis           |
| Indiana & Indianapolis Chambers of Commerce | Young Presidents' Organization               |

**Has been a lecturer and guest speaker on such subjects as:**

- |  |   |
|--|---|
| U.S. Foreign Policy in the Far East    | Why the Russians Kicked Communism Out in 1922               |
| Communism as I Saw It at Work          | God Is What He Means to You                                 |
| My Years in Latin America              | Are You Learning a Foreign Language or a Foreign Vocabulary |
| Everything Is Chemistry in Action      | Political Action  |
| What It Takes to Make Good in Business | Executive Health  |
| What Will Happen to Castro's Cuba      |   |

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\*IN DATA

DUNS: 04-120-8497  
MATRIX-CHURCHILL CORPORATION  
(FOREIGN PARENT IS T I  
GROUP, PLC, BIRMINGHAM,  
ENGLAND)

DATE PRINTED  
FEB 24 1988

SUMMARY  
RATING --

WHOL INDUSTRIAL  
EQUIPMENT  
SIC NO.  
50 84

STARTED 1967  
PAYMENTS SEE BELOW  
SALES \$7,000,000  
(PROJECTED)  
EMPLOYS 10  
HISTORY CLEAR  
TREND UP

5903 HARPER RD  
(SOLOM)  
CLEVELAND OH. 44139  
TEL: 216 248-7950

CHIEF EXECUTIVE: PAUL HENDERSON; PRES

PAYMENTS (Amounts may be rounded to nearest figure in prescribed ranges)

REPORTED	PAYING RECORD	HIGH CREDIT	NOW OWES	PAST DUE	SELLING TERMS	LAST SALE WITHIN
02/88	Ppt	100	-0-	-0-	N10	6-12 Mos
01/88	Ppt	1000	1000	-0-		1 Mo
	Ppt	1000	1000	-0-		1 Mo
12/87	Ppt	100	100	-0-	N15	1 Mo
10/87	Ppt	50	-0-	-0-	N30	6-12 Mos
	Ppt	-0-	-0-	-0-		1 Mo
	(007)	250	-0-	-0-		
/87	Ppt	500	-0-	-0-		2-3 Mos

\* Each experience shown represents a separate account reported by a supplier. Updated trade experiences replace those previously reported.

FINANCE  
05/28/87

Fire insurance on adse & fixt \$4,000,000. Umbrella policy.  
On MAY 28 1987 Gordon Cooper, vice president, deferred financial statement but submitted the above figures.

He submitted the following partial estimates dated MAY 28 1987:  
Projected annual sales are \$ 7,000,000.

He stated that sales for the 12 months ended Apr 30 1987 were up compared to the same period last year.

On May 28 1987 Gordon Cooper, vice president and treasurer, stated that financial statements are insured as a consolidated statement by parent company.

PUBLIC FILINGS

UCC FILINGS

09/03/87

Financing Statement #000088 filed 06-30-87 with Secretary, State of OH. Debtor: Matrix-Churchill Corporation, Cleveland, OH. Secured Party: Towlift Inc, Cleveland, OH. Collateral: specified industrial equipment/machinery.

The public record items reported above under 'PUBLIC FILINGS' and 'UCC FILINGS' may have been paid, terminated, vacated or released prior to the date this report was printed.

HISTORY  
25/29/87

PAUL HENDERSON, PRES  
STEPHEN C ELLIS, SEC  
DIRECTOR(S): THE OFFICER(S)

Incorporated Delaware Apr 1 1967. Authorized capital consists of 100,000 shares common stock, \$10 par value.

Business started 1967 by parent. 100% of capital stock is owned by parent.

HENDERSON born 1938. Prior to 1979 active with subject and parent. 1979-82 Hi-Tec Inc. United Kingdom. 1982-85 Lanser Brothers. United Kingdom. 1985-present active here full time.

COOPER born 1942. 1963-present employed by parent concern.  
England. 1973-present devotes full time to subject as vice president  
and treasurer.

ELLIS born 1947. Received JD degree from Case Western Reserve University in 1972. Active here as an advisor only.

OPERATION  
05/28/87

Foreign parent is T I Group, PLC, Birmingham, England, started 1919, which operates as a stockholding company. Parent company owns 100% of capital stock. Parent company has over 100 other subsidiaries. Intercompany Relations: Consist of subject selling merchandise of parent's manufacturing subsidiaries. There are no guarantees or endorsements.

Wholesales high precision industrial machinery manufactured by foreign affiliates of the machine tool division of parent concern. Terms are net 30 days. Has 700+ accounts. Sells to industrial concerns. Territory :United States, Canada and Mexico. Nonseasonal.

EMPLOYEES: 10 including officers.

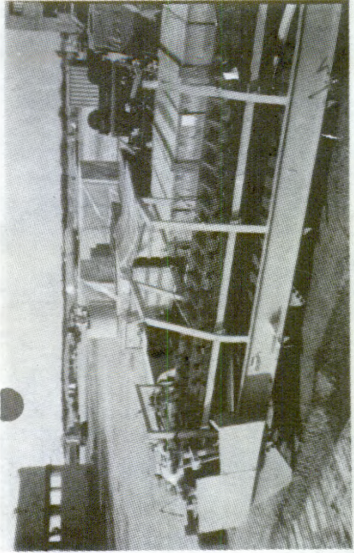
**FACILITIES:** Rents 19,000 sq. ft. in one story brick building in good condition. Premises neat.

LOCATION: Industrial section on side street.

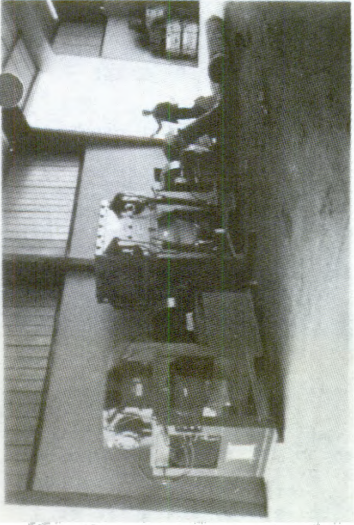
02-24(940 /179) 00000 200000008 012 163  
PH

PH

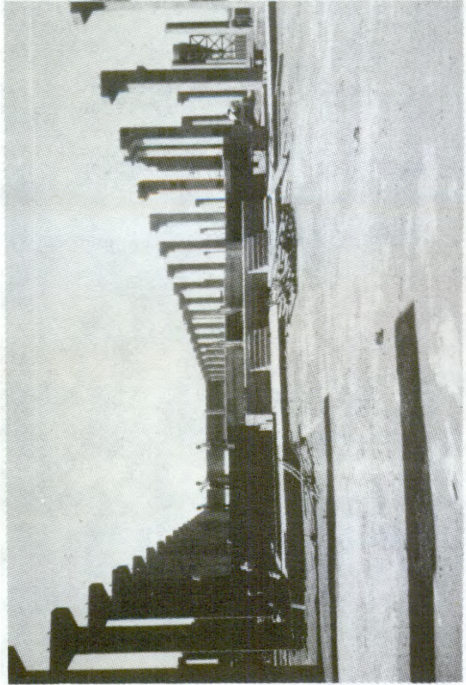
FULL DISPLAY COMPLETE



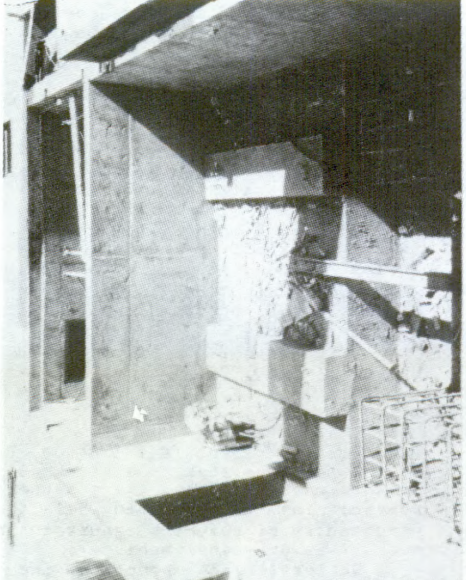
Ingot Caster with Iraqi scrap yard in background



Cable and wire chopping equipment in Iraqi warehouse



Iraqi brass refinery as of May 30, 1990. As of Aug. 2, 1990 no roof construction had occurred.



Foundation for furnace as of May 30, 1990. No furnaces were ever installed.





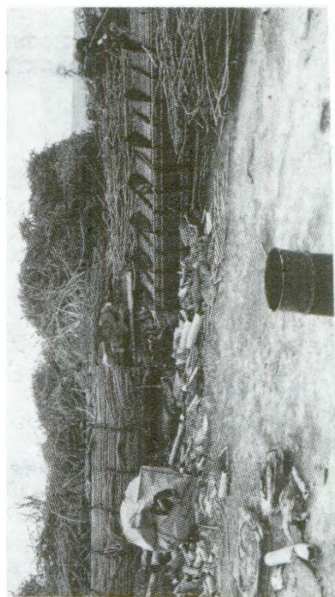
Scrap brass & copper with spent Iraqi shells in background



Scrap Iraqi cable and wire



Scrap copper tubing with various other Iraqi scrap



Scrap heat exchangers with spent Iraqi shells

REMARKS TO THE  
U.S. HOUSE OF REPRESENTATIVES  
COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS

BY

A. ROBERT ABBOUD

APRIL 9, 1991

Mr. Chairman and members of the Committee:

Thank you for the invitation to testify today concerning the Committee's ongoing investigation of the relationship between the Atlanta Branch of Banca Nazionale del Lavoro and Iraq. I cannot contribute directly to your inquiry because I have no personal knowledge of that relationship. However, Mr. Chairman, in your April 1st letter to me, you posed several questions regarding U.S.-Iraq commercial and financial relations, and I am honored to share my perspective on that topic with the Committee today.

I have been a consistent supporter of President Bush's policies in the Gulf, and have had an opportunity to meet with him twice since the August invasion. What Saddam Hussein did was wrong - it was criminal - and it was unjustifiable. I don't know why Saddam Hussein invaded Kuwait. Having met with him only once I would not care to attempt to analyze his reasoning or motivations. Suffice it to say that he miscalculated badly, and underestimated the strength of President Bush, the will of the American people, and the manner in which political disagreements are put to the side when our troops face enemy forces abroad.

- 2 -

I would like to review with you my role in fostering international trade. As an individual and as a banker I have long felt that international trade contributes to worldwide prosperity and tends to lessen tensions among nations. Over the years I have traveled to scores of countries in pursuit of this objective.

The Committee is concentrating its review today on trade with Iraq, a country with which the United States government re-established diplomatic relations in 1984. Ambassadors were exchanged, official trade credits were provided by the Department of Agriculture through the CCC, and by the Export Import Bank of the United States. Because the U.S. had not had diplomatic relations with Iraq for many years, most American businesses did not know the country or have an avenue to research business opportunities.

Although chairing the U.S.-Iraq Business Forum was not a full-time or paid position for me, it was an opportunity to work with a premier group of U.S. companies, large and small, with an interest in developing the trade ties which the U.S. government endorsed and initiated through its programs, trade fairs, and the direct encouragement of the U.S. Department of State and Department of Commerce.

I have only been to Iraq on one occasion since Saddam Hussein became Iraq's leader. I was there for 3 days from June 6-8, 1989 as part of a group of prominent business leaders who were members

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of the Business Forum. During that visit the group had briefings by the U.S. Embassy staff, met with several cabinet members, and bankers. We met with President Saddam Hussein on our final evening in Baghdad - in the company of U.S. Ambassador April Glaspie.

The discussions were consistently on Iraq's need to rebuild its civilian economy and its financial standing in the world community, which had been devastated by eight years of war with Iran. There was no talk of military requirements, but on developing agricultural and energy resources. Virtually the entire delegation attended all the meetings, which were held in conference rooms at the various ministries, so there was no private discussion of First City business. The American Embassy expressed a strong desire for the U.S. firms represented on the trip to participate in the upcoming trade fair in Baghdad.

Concerning the BNL scandal, as I mentioned at the outset of my remarks, I cannot add to what the Committee already knows. First City had no dealings whatsoever with BNL related to Iraq. I have not met with BNL officials, either in my capacity with the Business Forum or as Chairman of First City. None of my staff has met with them. Neither I nor my staff has spoken to BNL-Atlanta or BNL-Rome concerning any BNL loan to Iraq. In fact, the extent of First City's contacts with BNL, directly or indirectly, have been the following: (1) a phone call from Mr. Dragoul's secretary to the effect that Mr. Dragoul was or would be in town and would like to



- 4 -

stop by the bank to meet me (he never stopped by and we never heard anything more about it); and (2) a telex from a Jordanian businessman that two Iraqi government officials would be in the United States and would like to meet bank representatives to discuss, among other things, whether First City would be interested in participating as a lender in the creation of an Iraqi Industrial Fund with BNL. No meeting occurred and no bank employee communicated with the Iraqi officials, with BNL employees, or with the Jordanian, Wafai Dajani, concerning the concept. I was not a party to either of these two communications.

I understand that BNL was an active user of the U.S. government's export programs for Iraq. I have no knowledge as to whether they made proper use of these programs or not. Like most Americans, including the Congress, I learned through press reports about the billions of dollars in additional loans which BNL made available illegally to Iraq. Such activities could only have a chilling effect on relations between our countries, which were still on friendly terms at the time. As to the effect on the CCC and Exim programs, undoubtedly there has been a high level of scrutiny of the underlying operations. BNL's activities should not deter the creation of programs designed to improve export opportunities for American farmers and exporters of non-military products.

First City, during my years as Chairman, was dedicated to meeting the trade finance needs of our customers. We worked with

correspondent banks around the world to open up trade opportunities for farmers, small businesses, industrial and energy customers. As you know, Mr. Chairman, international trade is fundamental to the prosperity of Texas. With leading ports in Houston, Galveston, and Corpus Christi as well as the border cities with Mexico, Texas enjoys some \$50 billion a year in international trade out of a gross state product of about \$325 billion. One out of every eight manufacturing jobs comes from exports. And in agricultural exports, we rank first in cotton, second in rice, and third in wheat in the U.S. A large Texas bank would naturally finance its customers' trade.

During the late 1980's Iraq was the leading trading partner of the Port of Houston, principally as a result of the export of agricultural products and import of crude oil. We financed the sale of agricultural products to Iraq exclusively through the CCC program. Please remember, that the U.S. Department of Agriculture not only guarantees these exports - it originates the business with the importing country, and allocates that by individual products. The CCC concludes its arrangements on a government to government basis. Then the importing country makes its purchase arrangements. Banks come into the picture after these negotiations have been concluded.

First City committed to confirm and negotiate up to \$50 million of these American agricultural exports on the basis that it was good

- 6 -

for our customers, and that our principal risk would be capped at \$1 million because of CCC's 98% guarantee. We felt that this was prudent, not excessive, and appropriate for our size and the needs of our customers. Remember, the money never leaves the United States. Most of the goods left through the Port of Houston. We pay the American exporter.

These transactions were on the basis of confirming commercial letters of credit made in the normal course of business, subject to the CCC guarantee on each and every transaction in advance.

We made no other export loans to Iraq. None through Eximbank. None for our own account.

At the request of our domestic energy customers we issued import letters of credit for their purchase of Iraqi crude. In these transactions the credit risk is the importer - major international oil companies. None was on the books at the time of the invasion.

The Central Bank of Iraq and Rafidain Bank, the commercial bank which issued the agriculture letters of credit, kept short term deposits with First City and occasionally did foreign exchange transactions in the normal course of business.

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In summary, we tried to be responsive to the needs of Texas customers - farmers and agriculture exporters and energy companies - while capping our principal risk at \$1MM to protect our shareholders.

Mr. Chairman, during the last eight months we have seen a small country invaded by a hostile aggressor; we have seen great resolve in this country and among the coalition partners; and we have enjoyed military success thanks to the sacrifices of hundreds of thousands of our military personnel. I have consistently and publicly advocated the use of force to liberate Kuwait both at the White House and at public gatherings, and I am delighted that this has now been achieved. As a veteran, my heart goes out to those who lost loved ones and to those who were injured. Thankfully, the casualties were fewer than anticipated. Again let me thank you for providing me with the opportunity to share my perspective on these issues. I would be happy to respond to any questions that you or other members of the Committee might have regarding my testimony.

TESTIMONY TO THE U.S. HOUSE OF REPRESENTATIVES  
COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS

MARSHALL W. WILEY  
PRESIDENT (RETIRED)  
UNITED STATES IRAQ BUSINESS FORUM  
APRIL 9, 1991

1. Please explain your duties and responsibilities as President of the U.S.-Iraq Business Forum.

The U.S.-Iraq Business Forum is now inactive. Prior to August 1990, it functioned as a trade association of United States companies interested in doing business with Iraq. Its only source of funds were dues paid by member companies and its Board of Directors included such major corporations as Westinghouse, Caterpillar, General Motors, Mobil and Amoco. The Forum received no funds from the Iraqi government or other Iraqi sources.

As President I was responsible for all Forum activities within the policy guidelines established by the Board. Most of my time was devoted to membership development and program development. Our programs were designed primarily to educate the membership on the Iraqi market and on Iraqi business practices. In carrying out these duties I was able to draw on my own experience as a Foreign Service Officer, including service in Iraq, and as an international lawyer with a major law firm.

2. Please provide a brief historical overview of U.S.-Arab commercial relations.

During the 1967 Arab-Israeli War, diplomatic relations between the United States and Iraq were severed. After that date U.S. exports to Iraq were minimal and commercial relations were limited to the importation of Iraqi crude oil through normal international marketing channels.

In 1973, the U.S. established an Interests Section in the Belgian Embassy in Baghdad and assigned a commercial officer to the staff of the Interests Section. U.S. exports to Iraq increased slowly, but Eastern Europe, Western Europe, Japan, China, and the Soviet Union continued to be the main suppliers of Iraqi imports.

In 1984, the United States and Iraq resumed full diplomatic relations and subsequently signed an agreement on trade and commerce, indicating the desire of both governments to expand commercial relations between the two countries. In 1985, the U.S. Iraq Business Forum was founded at my initiative to assist U.S. companies who were interested in the Iraqi market. The Forum received the cooperation of both governments in its efforts to promote commerce between the U.S. and Iraq.

By 1989, U.S. exports to Iraq had increased to approximately \$1.5 billion dollars per year. This figure included approximately \$1 billion in agricultural commodities, most of which were exported under the Department of Agriculture's

Commodity Credit Corporation guarantee program. The other \$500 million included a variety of construction materials, automotive spare parts, pharmaceuticals, medical equipment, and other miscellaneous items.

Until recently, the government of Iraq prohibited foreign investment in Iraq, except for investment from other Arab countries. As a consequence, there is now no significant United States investment in Iraq.

3. Did the Forum sponsor trade shows in Iraq? How often did you personally visit Iraq? Did you ever meet with Saddam Hussein? Please elaborate.

The Forum sponsored one trade mission to Iraq for our member companies. The U.S. Embassy Commercial office assisted us in developing a program for the mission. The Forum also twice rented booths at the United States pavilion at the Baghdad International Fair. The Fair is an annual trade show for non-military materials and commodities. The Forum then sublet space in our booth to member companies who did not wish to incur the full expense of a single booth. I personally visited Iraq approximately once per year. I met with Saddam Hussein once with a delegation of senior U.S. business executives in the late spring of 1989. The meeting was cordial and Saddam Hussein expressed his interest in expanding normal commercial relations with the United States.

4. Regarding BNL:

- a. What effect did the BNL scandal have on U.S.-Iraq relations?
- b. What effect did the BNL scandal have on the financial condition of Iraq?

The BNL scandal undoubtedly contributed to the decision of the Department of Agriculture to suspend the CCC credit program for Iraq in January 1990. Since Iraq was unable to obtain private bank credit from other U.S. banks to finance commodity sales to Iraq, the suspension of the CCC credit program severely reduced the level of U.S.-Iraqi trade. Since Iraq had given the United States priority in its debt repayments and had kept its payments on prior CCC guaranteed loans up to date, the decision to suspend the program probably also created concerns in the minds of the Iraqi leadership about U.S. intentions towards Iraq.

The BNL scandal and the subsequent suspension of CCC credit guarantees added to Iraq's cash flow difficulties. Although potentially a wealthy country, Iraq emerged from the Iran-Iraq war with a pressing need for additional credits to service their debt and finance their ambitious development program. The BNL scandal obviously contributed the their cash flow problems.



- c. Did you ever meet any of the BNL employees? What did you think of the BNL-Atlanta involvement with Iraq? Did you think it was unusual that a small branch of an Italian bank was financing so much business with Iraq?

In my capacity as a lawyer, I met with a BNL vice president in Atlanta in the company of a client to discuss arrangements for a CCC guaranteed loan for a sale of lumber to Iraq. At a later date, the BNL President, Chris Drougel, called on me in my Washington office in the presence of his attorney to discuss the investigation of BNL then being conducted by several agencies of the U.S. government. He apparently concluded that my legal service would not be of use to him, and I have not heard from him since that visit.

I did not find it unusual that many of the CCC guaranteed loans were made by BNL. I assumed that the Iraqi government had some arrangement with the BNL main office in Rome which included the use of the BNL Atlanta branch to provide loans for Iraq under the CCC credit guarantee program. I was unaware of any additional BNL loans to Iraq not guaranteed by the U.S. government.

5. Regarding the U.S. Embassy in Baghdad, Iraq

- a. How often were you in contact with the U.S. Embassy in Iraq? What was the nature of your contact with the

Embassy? How would you characterize the Embassy's position towards Iraq-U.S. commercial relations?

I am a retired Foreign Service Officer and I served in Iraq from 1975 to 1977. The last two U.S. Ambassador's to Iraq were personal friends and colleagues of mine from my days in the Foreign Service. I also knew personally several of the Embassy staff, both American and local. My business dealings, however, were focused primarily on the Embassy's commercial officers and the agricultural attache who was responsible for the agricultural commodity sales program. I worked closely with the Embassy on all of my visits to Baghdad.

Prior to the Iraqi invasion of Kuwait the Embassy considered the promotion of U.S. Commerce with Iraq as one of its major responsibilities. This would be true of any Embassy, unless it were specifically instructed to the contrary by legislation or senior administrative authority.

6. Regarding the Export-Import Bank and CCC Programs

- a. What was the Business Forum's reaction to the EX-IM Bank's not approving medium term programs for exports to Iraq?

The Business Forum kept its membership informed of EX-IM Bank and CCC policies. It is a fact that most of our foreign

competitors were receiving medium term export credit guarantees from their governments which made it impossible for U.S. companies to compete on some major projects such as power plants and major water projects. The Forum's relationship with the EX-IM Bank personnel was cordial and EX-IM officials were normally invited to our membership symposia and receptions.

- b. How important were EX-IM Bank guarantees to U.S.-Iraq trade?

The EX-IM program was limited to \$100 million in short term credit insurance. The program was too small to have had a major impact on U.S.-Iraqi trade.

- c. How important were CCC guarantees to U.S.-Iraqi agricultural trade?

The program reached a level of \$1 billion per year before it was suspended. Since Iraq was unable to obtain unguaranteed credit for U.S. sales to Iraq, there would have been very few, if any, agricultural sales without the CCC programs.

- d. What effect did the BNL scandal have on the CCC and Export-Import Bank programs?

The BNL scandal was certainly one factor that entered into the decision to suspend the CCC programs in January, 1990. To

the best of my knowledge, it had no direct effect on the EX-IM program.

7. What was your reaction when learning that the Iraqi government had used poison gas on the Kurds? How did that issue affect U.S.-Iraqi commercial relations?

To the extent that these allegations are true, I find such action abhorrent. I do not know the extent to which such allegations affected the actions of U.S. businessmen. It may well have made some decide not to do business in Iraq. The Forum had hoped to exert a modifying influence on the behavior of the Iraqi government by strengthening its ties with the United States.

8. Please share with us your personal thoughts as to why Saddam Hussein invaded Kuwait. In your opinion, did Iraqi financial difficulty play a large role in Saddam Hussein's decision to invade Kuwait? In your opinion, did Iraqi financial difficulties play a large role in Saddam Hussein's decision to invade Kuwait?

In my opinion, Saddam Hussein invaded Kuwait primarily for economic reasons. He believed that Kuwait was conspiring with the United States to wreck the Iraqi economy. As evidence he cited Kuwait's oil production 50% in excess of it's OPEC quota and Kuwait's reluctance to cancel Iraq's debts and make further loans to Iraq. He also believed Kuwait was over-producing from

the North Rumaila oil field which straddles the Iraq-Kuwait border. He believed that Kuwait had benefited from Iraq's long and bloody war with Iran and was not sufficiently appreciative of Iraq's efforts, considering Kuwait's immense wealth and Iraq's difficult economic circumstances. The U.S. Department of Agriculture's decision to suspend the CCC credit guarantee program with Iraq - despite Iraq's excellent repayment record - was no doubt taken as evidence of a U.S. determination to harm Iraq economically.

At the same time, I believe that Saddam Hussein did not view his invasion of Kuwait as an anti-U.S. action. He had not threatened U.S. oil supplies - or even an excessive oil price increase. He was probably honestly surprised at our strong reaction in defence of the Emir of Kuwait and the Sabah family for whom he had a very low opinion, bordering on contempt. His decision to invade was motivated by his sense of insecurity and his belief that Iraq was under siege from unfriendly powers.

9. Any other thoughts you may have regarding U.S.-Iraq relations or the BNL scandal?

The allegations of wrong doing in U.S.-Iraq commercial relations should be kept in perspective. The U.S. government and the media have made intensive efforts to uncover such wrongdoing for the last 18 months and the concrete results of these investigations have so far been quite limited. In fact, there

appears to be very little evidence of any substantial number of illegal shipments to Iraq from the United States. To the extent such wrongdoing has occurred, it should, of course, be prosecuted. On balance, however, most businessmen considered Iraq the least corrupt of the countries of that area and almost all of our trade with Iraq has been legal and above-board.

There is a danger that our intensive focus on the personality of Saddam Hussein will obscure the longer range considerations of U.S. interests in Iraq and elsewhere in the area. In the long run, Iraq will no doubt become an important country by virtue of its huge oil reserves, its natural resources, its infrastructure and its relatively well educated manpower resources.

There is a natural fit between the U.S. and Iraqi economies which could provide the basis for an important economic relationship when and if we can overcome our present political problems. In the emerging world of intensive international economic competition, Iraq could emerge as an important trading partner for the United States. I hope our present policies will not foreclose this opportunity for the future.

**KENNETH L. MOORE****Consulting Engineer--Ordnance Development and Production****General**

Mr. Moore is a senior ordnance engineer with 18 years' experience in the design, production, and upgrade of conventional munitions. Specific experience includes ROCKEYE cluster bombs, laser-guided bombs, 2.75" and 5" air rockets, Mk 80 series bombs, 105mm tank ammunition, and 155mm artillery projectiles. Mr. Moore currently is involved primarily in the design and set-up of ordnance production facilities, and in associated hazards analyses and safety design studies.

**Areas of Experience**

Mk 80 series general purpose bomb production and loading

155mm artillery projectile metal parts production and loading

105mm tank round parts production and loading

Adaptation of foundry production technology to replace forged projectiles and bombs with ductile iron castings from commercial foundries

Formulation and casting of composite rocket propellants to 21" diameter

20mm, 25mm, and 30mm gun ammunition development and production

Explosives, propellant, and pyrotechnic safety and hazards analyses and facility design for protection of personnel and capital assets

**Professional Accomplishments**

Responsible for introduction to service use of several new ordnance systems and major performance improvements in several others. Twelve patents in ordnance, energetic materials, and energy conservation; numerous publications on same topics.

**Career Status**

Independent consultant to US Government and Industry for production of improved air and land weapons systems. Work includes facilities design, safety and hazards analyses, and classroom training.

## OVERVIEW OF THE MUNITIONS INDUSTRY

**General.** Conventional weapons and ammunition are frequently regarded as a corner-stone of national independence by modern nations. This attitude is not restricted to major powers such as the United States, Europe, and Japan, but increasing applies to those nations described as "developing" or "third world" countries. In most instances, the desire to produce weaponry arises from considerations of national security, particularly in situations where there is concern over an arms embargo in the event of conflict with one's neighbors or other enemies.

The attitude toward indigenous production is the same in most countries--it is usually desired that high-use items such as ammunition for tanks, artillery, and the infantry be produced (or at least assembled) in-country, and for this purpose special load-assemble-pack (L.A.P.) plants, intended for filling projectiles with explosives and for assembling complete rounds from shells, cartridge cases, and propellant charges, are popular first items in any military industrial buildup. On the eve of World War Two, for instance, the United States embarked on a massive program of erecting LAP facilities all across the country, and based its war-time industrial policy on the ability of industry to supply these plants with such items as cartridge cases, artillery shells, and bomb bodies. Production of explosives and propellants was expanded from Government hands to Government Owned, Contractor Operated (GOCO) plants, and contracts were given to, or forced upon, many industrial firms for the duration of the war. What thus developed was a highly integrated infra-structure of metal parts and chemical producers working together with LAP facilities to produce and deliver complete rounds of ammunition to the military. At a somewhat later date, Government-owned facilities for metal parts were expanded, facilities which at the present have become largely idle due to increasing obsolescence of their machinery and end products. Only in time of major conflict, or due to national isolation or paranoia, will dedicated facilities be erected for military ammunition metal parts production. This is due to the inefficient nature of such plants, and to the extremely high cost of capital equipment and maintenance.

United States practice at present is to procure ammunition or bomb metal parts from both GOCO and industry sources, and to accept delivery of these components at GOCO plants for filling with propellants and explosives (usually from other GOCO plants), and assembly with fuzes and other metal components such as links (from commercial sources) into complete munitions which are then packed into metal or wooden containers from commercial sources. Actual production of procured components is frequently undertaken in plants which are dedicated to military goods production, although this is changing as the US Defense budget declines. In addition, there are now several private LAP plants in operation, both for US Government sales and for overseas sales, and nearly all private firms, whether metal parts, fuze, or explosives producers, look



increasingly to the overseas market for their financial support. What has changed most in this picture over the past few years is the extent to which US industry is allowed to sell its products overseas, either loaded or as components, and the transfer of armaments production technology and machinery to other nations. The United States is not alone in this field; in fact, it is frequently a secondary player as there are few firms in the United States which specialize in the supply of armaments production facilities. For many years, such work was undertaken by a number of European firms, on both sides of the Iron Curtain, and the activities of US firms were restricted to supply of machinery or components to plants already in existence. When US firms did participate, it was usually under US Government contract to supply a complete, operable plant under so-called "turn-key" conditions. In recent years, a few US firms have entered the arms production facilities market, where their ability to compete has been hampered by their inexperience in arranging financing for the sale, frequently including conditions of payment at the end of the job, or arrangements for payment over a period of several years.

Many US firms are novices in the field of export operations, and the Commerce Department has an aggressive program of support to US firms wishing to engage in export activities. In addition, many states and regional development authorities have arrangements with banks to finance various phases of overseas sales. Because of the complexity of the process for obtaining permits for export of machinery for production of military goods, two phenomena are highly visible at the present time. These are the use of export management firms, or trading firms, as brokers for the sales, and the use of commercial export licenses, whenever possible, to ease and speed up the export process.

Export firms, including trading companies, normally operate either as agents (on commission) or brokers, buying goods for subsequent re-sale to another intermediary or to the end user. This arrangement is popular with machinery producers, in particular, who are reluctant to begin a job without some advance payment and who frequently will not ship machinery without having all, or nearly all, of the payment received by their own bank. In nearly all cases, machinery used for production of munitions components is obtained from standard industrial sources, as will be discussed later, and equipped with special tooling to permit production of specific end items. In this market, it is not uncommon for a firm working on a turn-key project to become its own trading and finance company, which requires that it become proficient in such areas as project management, industrial sub-contracting, and handling of international commercial letters of credit.

In a typical export case, such as a machine for production of rifle cartridge cases, the exporting firm will engage the services of an engineering firm to buy the required machinery, make such modifications as are necessary, and prepare the goods for shipment. To

exercise greater control over the project, and to minimize the extent of information "leaks" to potential competitors, some firms will hire technical experts to exercise technical management over the project, and then sub-contract the engineering to one firm, the machinery to another, and the tooling to yet a third. This works well when the export firm is fully versed in the particular production art, and has, in fact, led to some interesting embarrassments when goods delivered to the customer require extensive modifications before they are operable. To avoid this, successful export firms arrange for all equipment and tooling to be checked out in their own country, or at least under their own supervision, prior to shipment to the customer. The process of "commissioning" the machinery in the customer's factory is then done at greatly reduced risk, and suppliers and sub-contractors are much more agreeable to working on the project since their payments will be received before the goods leave their physical control.

**Munitions production.** This is a specialized field of industrial activity, frequently performed under military supervision, involving materials and processes adapted from similar commercial activities. The range of such processes encompasses virtually the entire field of commercial engineering practice--chemicals, metal components, and electronic assemblies are produced and assembled in manners frequently identical to those employed in the commercial sector. There are, in fact, very few military end items which are produced in plants or with machinery designed and manufactured specifically for military production purposes--most machinery in use today is adapted from commercial chemical, metal-working, and electronic production practice.

**Military Industry Build-up in Iraq.** In the 1980's, with a war against Iran already in progress, Iraq became a major consumer of military hardware, including aircraft, armored vehicles, artillery, and ammunition. The extent of this activity increased to the point where supply became a problem, as Iraq's ocean access was restricted and goods had to be transported overland after unloading of vessels, usually in Jordan or Turkey. To reduce the economic cost of the military procurement, Iraq undertook a major expansion of its military industries, an expansion which grew to encompass virtually every field of industrial activity which would support the enormous Iraqi military machine. Chemical industries based on petroleum were expanded significantly, and centers were set up for research and development as well as for production of military products ranging from sewn goods (packs, bandoleers, tents) to munitions. Much of this was based on acquisition and modification of commercial equipment, frequently from firms having little or no experience in the military field but who could manufacture the required equipment and export it as commercial goods, thus avoiding (it is presumed) scrutiny by the normal arms control agencies.

Examples of the use of commercial equipment for production of military goods of special interest to this hearing include artillery

gun barrels, artillery shells and tank track components, other ammunition components, cluster bombs and fuel-air-explosive (FAE) bombs, and electronic components such as integrated circuits and solar cells.

**Centrifugal Casting of Gun Barrels.** Throughout 1990, there was considerable press coverage of the activities of Dr. Gerald Bull and his firm, Space Research Corporation, in the development of a so-called "super-gun" for Iraq. The initial portions of this gun were, it is alleged, procured from forging houses in Europe for assembly in Iraq. One highly interesting item which came to light was the attempt by Iraq to buy a state-of-the-art centrifugal casting machine. This machine, supplied by an American firm, was supposedly for the production of ductile iron water and sewer pipe. In fact, this is the principal use of such equipment in the United States today, but it has a somewhat chilling military application. During World War Two, the United States built well over 100,000 artillery gun barrels by centrifugal casting, and went so far as to set up a special factory for this purpose alone. Attached sections of Army and other historical documents show this clearly, even though today most engineers think of gun barrels as suitable only when produced by hot-forging operations. In fact, it was known that the centrifugal casting process produced consistently superior gun barrels, and barrels were produced up through the largest items in service in World War Two.

**Rotary Forging of Gun Barrels.** The so-called "rotary forge" is a machine which employs a set of external, radially operating hammers to pound a tube or hollow billet of steel over a work piece, known as a mandrel, for the purpose of forming it into a useful hollow cylindrical item. Examples include vehicle drive train components and suspension items as well as gun barrels. One notice of this equipment in the West was its acquisition in large numbers by the Soviet Union in the 1970's; at that time, the US Government had acquired one such forge for evaluation purposes at the Watervliet Arsenal gun barrel shop. In some calibers, it is possible to generate the internal grooves, known as "rifling" by this process, thus avoiding what is otherwise a costly, time-consuming procedure.

**Shell Production by Forging.** Most artillery shells are produced today by the "hot-cup, cold-draw" process which transforms solid cylinders or square sections into nearly finished projectiles. The machines employed in this work are normally of two types--hydraulic extrusion presses, and a device known as an "upsetter". Hydraulic presses are most common today, and are used for forming shells from both heated as well as cold stock. There are still several suppliers of this type of press in the US, and adaptation of such a machine for military production is accomplished through acquisition of appropriate tooling. The latest machines will have two or more operations performed in the same machine, with robotic handling equipment to insert, transfer, and extract the forged shell bodies. There is no difference between a hydraulic press for forging shells

and one for forging aircraft landing gear components or vehicle suspension members. An upsetter is used commercially for production of cylindrical bodies such as truck axles in high volume, and in World War Two was used extensively to produce many millions of shells up through 105mm. The use of upsetters has come back in recent years due to changes in specifications and quantities recent years due to changes in specifications and quantities procured by the military.

**Tank Track Production by Forging.** Tank track components, specifically track shoes and link pins, are typically formed in a hammer press, either horizontal or vertical, by a series of sharp blows to a heated work piece. The same machine, which can be operated by steam, air, or oil pressure, is often employed to produce crank shafts, cam shafts, wrenches, and many other automotive components and hand tools. Again, the only difference is the tooling and the impact force and repetition rate, which today is controlled from a computer console.

**Cluster Bomb Components.** During the Iran-Iraq war, it is alleged that Iraq acquired the technology to produce sophisticated cluster bombs originally of US design. Components for the small bomblets used in these cluster bombs are produced by processes known as stamping and "deep-drawing", which are used commercially for the production of lip-stick tubes, ball-point pens, and aluminum cigar containers as well as sub-munition grenades and small arms cartridge cases for the military. These machines are usually comprised of a series of vertical punch or press elements, laid out in a straight line, along which the work piece is moved as it is transformed from a solid piece of metal into a finished or nearly finished article.

**Fuel-Air-Explosive (FAE) Bomb Filling.** During the last year, it has come to light that Iraq has acquired the technology to produce fuel-air-explosive (FAE) bombs, and has even advertised its products in its military products catalogue. What is of concern here is that the Iraqi FAE bomb is filled with a material known as ethylene oxide, which is used commercially for sterilization of medical instruments and in agriculture for accelerated ripening of fruit during shipment. It is also the starting point for several other chemicals of military and commercial use.

**Printed Circuit Boards.** Most modern electronic assemblies in communications equipment are produced by attaching individual components and sub-assemblies to "printed-circuit" boards. In these systems, copper previously plated onto insulating materials such as fiberglass or phenolic is etched away chemically to form electrical connections, thus avoiding a time-consuming and costly wiring process. In 1986, General Amar, head of Iraq's Scientific and Development Committee was asked about the role of an electronics component factory supplied by the French firm Thomson-CSF. He replied that Iraq's goal was to develop its own electronics industry, not just become self-sufficient in production, and that

independence and free action in the future was dependent on such abilities in the electronic field. Machinery used for production of circuit boards and most other electronic components is the same, whether the end items are television sets, medical instrumentation, or military radios.

**Hybrid and Monolithic Integrated Circuits.** Sometime in the 1980's, Iraq acquired the capability to produce integrated circuits at a level achieved by the US and most other powers during the 1960's and 1970's. Perhaps this was a portion of the technology acquired from the French; in any case, when combined with a printed circuit capability it leads to the ability to fabricate compact, rugged electronic assemblies such as are required for modern guided missiles, aircraft electronics, spacecraft, and artillery proximity fuzes as well as small computers and associated hardware.

**Solar Cells.** Solar cells are not normally thought of as having many military applications, although they are extremely useful in supply of electrical power to modern electronic equipment in remote sites where electric generators will provide electrical emissions which can be detected by surveillance equipment. They are also used as power sources in orbital spacecraft, which is interesting in light of Iraq's announcements to develop space weapons in response to Israel's capabilities in those fields.

*UNITED STATES ARMY IN WORLD WAR II*

The Technical Services

THE ORDNANCE DEPARTMENT:  
PROCUREMENT AND SUPPLY

by  
*Harry C. Thomson*  
and  
*Lida Mayo*



*OFFICE OF THE CHIEF OF MILITARY HISTORY*  
*DEPARTMENT OF THE ARMY*  
*WASHINGTON 25, D. C., 1960*

### *Centrifugal Casting*

Though the first patent on casting in a rotary mold was issued in England early in the nineteenth century before the Ordnance Department was created, application of the principle to gun production in the United States dates only from World War I and the years following. Long before 1918 the centrifugal process had been used for commercial manufacture of pipes, piston rings, gear blanks, and thin-walled metal tubing, but Ordnance did not begin serious experimentation with centrifugal casting of cannon until 1925. In 1918 an Ohio concern, the Paper and Textile Machinery Company of Sandusky, had submitted to Ordnance for examination three centrifugally cast steel cylinders and had been awarded a contract to build a machine large enough to cast the 155-mm. howitzer tube. In 1925, after delivery of the machine, its use was energetically pushed by Brig. Gen. Tracy C. Dickson, commanding officer at Watertown from 1918 to 1932. During the experimental stages in the mid-20's Watertown made large numbers of castings under different conditions and gave the resulting guns every known metallurgical test. The experimental casting cylinder used at Watertown was fitted with glass end pieces to permit observation of the molten metal after it was poured into the whirling cylinder.<sup>114</sup> By 1932, after years of experimental production, a member of the Watertown staff was able to report in a scientific journal

that, "The manufacture of cannon from cast steel is an accomplished fact. Molten steel is poured into a revolving mold and shaped by centrifugal force to the shape of the mold. The result is a piece of ordnance superior in many ways to anything heretofore produced."<sup>115</sup> There were still many problems to be solved, and rejection rates remained high, but by 1940 the process was sufficiently developed to be ready for quantity production.

During World War II centrifugally cast guns made a substantial contribution, starting with the small sizes and eventually working up to medium sizes. On 20 June 1944 Watertown passed two landmarks in its production history: completion of its 100,000th centrifugally cast gun tube, and installation of a new machine for casting heavy cannon weighing up to 10 tons. The centrifugal process not only resulted in speedy production and economy of material but produced a gun that, unlike the forged gun which was stronger lengthwise than crosswise, had uniform directional properties. Centrifugal force tended to drive impurities toward the center where they could be eliminated when the gun was bored, and to increase the specific gravity of the product. Economy, simplicity of manufacture, speed of production,

<sup>114</sup> History, Watertown Arsenal, vol. 102. This reference gives a detailed account of centrifugal casting experience at Watertown, including numerous photographs.

<sup>115</sup> "Whirling Molten Steel to Make Gun Castings" by 1st Lt Steven L. Conner, *Scientific American*, 147 (September 1932), 160.

and greater uniformity of product—all these were virtues of centrifugal casting.<sup>116</sup>

In December 1941 Ordnance placed contracts for two government-owned, contractor-operated plants to make gun tubes according to Watertown's centrifugal casting method. The Houston Tool Company built and operated the Dickson Gun Plant in Houston, Texas, and the Ohio Steel Foundry Company operated the Ohio Gun Plant at Lima, Ohio. The latter arrangement was terminated in September 1942 in view of the drastic reductions in the Army Supply Program, and the plant thereafter became the Lima Tank Depot. The Dickson plant continued in operation until the end of the war, turning out a total of more than 12,000 gun tubes, of which about half were for 105-mm. howitzers.<sup>117</sup>

<sup>116</sup> Hist, Watertown Arsenal, vol. 102, including long extracts from Watertown Arsenal Rpts by Dickson, Capt Hugh C. Minton, Capt Scott B. Ritchie, and Lt Steven L. Conner during the 1920's and 1930's and personal notes of Dr. J. L. Martin, superintendent of production.

<sup>117</sup> (1) History, Dickson Gun Plant, OHF; (2) History, Ohio Gun Plant, OHF. The latter contains a lengthy memorandum by Maj. Tracy Dickson, Jr., to OCO Historical Section, 31 December 1943.



# ELEMENTS OF ORDNANCE

*A Textbook for Use of Cadets of the  
United States Military Academy*

PREPARED UNDER THE DIRECTION OF  
MAJOR GENERAL THOMAS J. HAYES

FORMERLY PROFESSOR OF ORDNANCE AND SCIENCE OF GUNNERY  
UNITED STATES MILITARY ACADEMY;  
OFFICE OF THE CHIEF OF ORDNANCE,  
WAR DEPARTMENT, WASHINGTON

*A revision of the "Textbook of Ordnance and Gunnery," by  
Colonel Earl McFarland, formerly Professor of Ordnance  
and Science of Gunnery, United States Military Academy*

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## COLD-WORKED GUNS; CENTRIFUGALLY CAST GUNS 193

**175. Centrifugal Casting of Cannon.**—A means of forming pipe and other cylindrical shapes from various metals by centrifugal casting has been known and used for more than one hundred years, but the application of this process to the casting of steel is a comparatively recent development. The process involves the pouring of molten or liquid metal into a chill mold (a mold made of cast iron instead of sand), which is rotated at a high rate of speed so that centrifugal force causes the metal to take the shape of the mold before it solidifies. Since the solidifying or freezing temperature of steel is much higher than that of any metal previously cast by this process, the problem of centrifugally casting steel was a much more difficult one.

This method of shaping steel has been developed by the Ordnance Department to the extent that it is now a standard step in the manufacture of gun tubes up to and including the 3-in. antiaircraft. Experimental castings for 5-in. guns have been produced and studies are being made towards producing guns up to 8-in. caliber by this method. In addition to the saving of time and money, elimination of the forging process in gun manufacture relieves one of the serious problems encountered in the production of armament in time of war. The action of centrifugal forces upon the physical and chemical structure of the steel, moreover, gives a high-quality casting.

Knowing the dimensions of the desired cannon casting and the chemical composition of the alloy steel from which it is to be cast, the steel melter determines the weights of the various items of the melting stock that will form the furnace charge. When the "heat" is ready, the molten steel is poured into a special runner box which carries a spout that will direct the molten metal into the opening in the chill mold. The chill mold is a special shaped casting, the outside of which fits into the casting machine but the inside is bored out to the desired shape of the exterior surface of the cannon to be cast. Each design of tube or liner requires a special chill mold for that design.

The pouring of the whole heat must be accomplished quickly to avoid the freezing of the steel before the mold is properly filled. The casting is removed from the chill mold as soon as it is solid and rigid enough to keep its shape during handling. When removed from the chill mold, the hot casting is cooled slowly in cinders or in a furnace to obtain a more uniform crystalline structure of the metal.

It is then given a normalizing and annealing treatment, and rough-machined internally and externally. The casting is then quenched and drawn, the treatment being similar to that given a gun forging. If the casting is to be cold-worked, it is then re-machined.

# FOUNDRY PRACTICES

BY

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AMERICAN TECHNICAL SOCIETY  
Chicago, U.S.A.

die cast from copper-base alloys. The tensile strength of copper-base alloy die castings is considerably higher than that of die castings produced from other alloys. For example, die castings made from yellow brass, a much usable alloy, have a tensile strength of 65,000 pounds per square inch. Another type of a special brass, a high-grade alloy, produces die castings which have a substantially higher tensile strength—105,000 pounds per square inch. Manganese bronze die castings have a tensile strength of 85,000 pounds per square inch.

The materials first used for die castings were lead-base alloys because of their low melting temperatures. The use of these alloys for die castings at the present is rather limited. This is due to the continued development of other low-melting temperature alloys, such as zinc-base alloys, which yield products of high quality at low cost. The following products are die cast from lead-base alloys: light duty bearings, X-ray shields, battery parts, weights, and other products for which it is necessary that good resistance to corrosion be obtained. The tensile strength of these alloys is low as compared with previously described alloys, the range being 7,700 to 13,800 pounds per square inch.

Other low-melting temperature metals are the tin-base alloys, but their use for die castings is limited at the present because of the low value of their mechanical properties and the high cost of material. Some of these alloys, known as *Babbitt metal*, are used for bearings in the automotive and aircraft industries. Other alloys have been developed which offer good resistance to corrosion and are recommended for food and beverage handling equipment, soda fountain fixtures, and other equipment in this category. The tensile strength of these alloys is rather low, ranging between 7,500 and 10,000 pounds per square inch.

**Centrifugal Casting.** The principle of this casting process is that the mold rotates fairly rapidly while the molten metal is poured into it. This casting process is also referred to as *liquid forging* because of the poured metal being worked while the mold rotates. Due to the rotation of the mold, centrifugal forces are being developed, which direct the incoming liquid metal to the inner surface of the mold with considerable intensity, where solidification occurs. This method of casting produces a product of greater accuracy and superior physical properties as compared with that produced by gravity sand casting. Centrifugal casting is especially appropriate for products of symmetrical shape, such as cast-iron pipe, sleeves, and other castings of cylindrical form. The molds may be permanent and entirely metallic, semipermanent (made of metal and lined with refractory material), or of sand. If sand molds are used, they

are usually placed in a metallic container or housing adapted for spinning.

The centrifugal casting principle dates back to 1850, but the commercial application of the process began about 1900. Iron castings were the first products manufactured by this process. Production of nonferrous and plain carbon steel castings came later, and centrifugally cast bronze and alloy products came into use in recent years.

There are several methods of centrifugal casting which vary, depending upon the shape of the casting produced. The *true centrifugal casting* is one method which can be applied in the production of cast-iron and cast-steel pipes and tubes. Large tonnages of these materials are produced

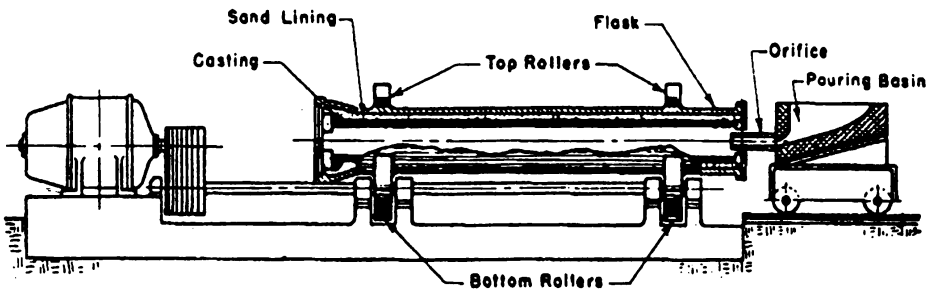


Fig. 12. True Centrifugal Machine for Long-Tube Casting

*Courtesy of American Cast Iron Pipe Company, Birmingham, Ala.*

by this casting method. The operation consists of spinning the mold about its horizontal or vertical axis by mechanical means. Rapid spinning of the mold produces a force capable of holding the molten metal against the inside surface of the mold until the metal solidifies. The interior of the mold is cylindrical, and usually is fitted with a liner of highly refractory material. The inside diameter of the cylindrical liner is equal to the outside diameter of the desired pipe or tube, and no core is required, as the wall thickness of the tube is controlled by the volume of molten metal poured into the mold. Pouring temperatures for iron and steel range from 2,700° to 3,000°F. A true centrifugal machine, with indirect drive through the top and bottom rollers supporting the flask, is shown in Fig. 12.<sup>2</sup>

Production of sound cylindrical castings depends upon correct spinning speeds. These have been well determined after considerable research

<sup>2</sup> "Centrifugal Casting of Steel," by S. D. Moxley, from *A.S.M.E. Transactions*, October, 1944.

and development. Excessive spinning speeds produce high stresses in the casting, making it unsuitable for practical purposes, while slow speeds prevent the molten metal from adhering to the inside surface of the mold. Speeds vary in accordance with the metal being cast, the size of the castings, and other factors. A shop producing a large variety of work by centrifugal casting requires mechanical equipment suitable for speeds ranging from 50 to 3,000 revolutions per minute. The machines are either mechanically or hydraulically driven, hydraulic operation being pre-

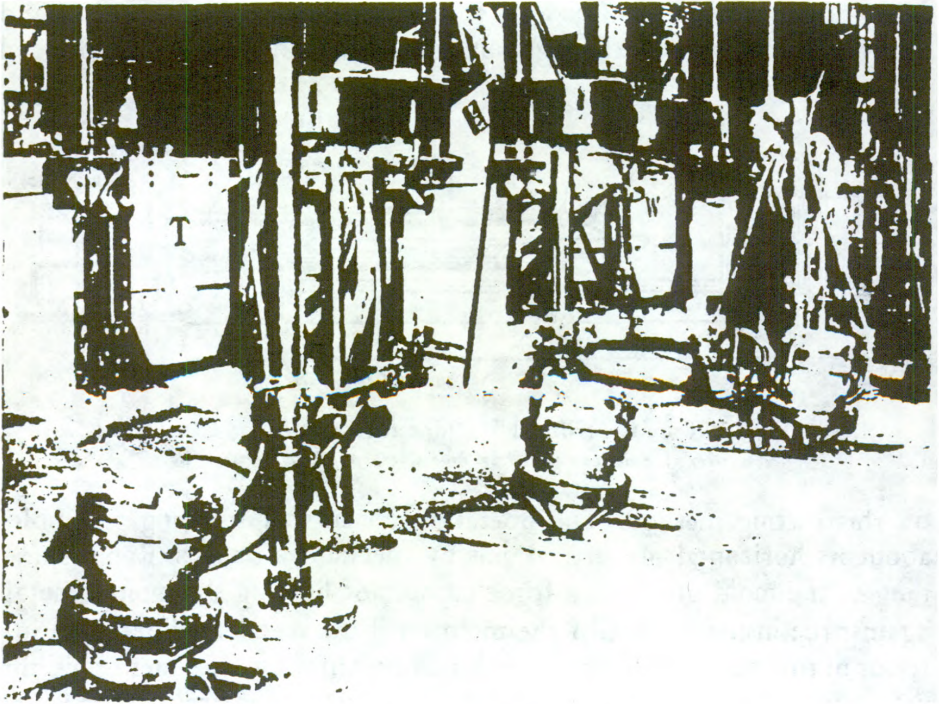


Fig. 13. Group of Vertical Spindles and Part of Melting Equipment in a Centrifugal Casting Shop

*Courtesy of Ampco Metal, Inc., Milwaukee, Wis.*

ferred because of the smooth operation and the capacity for infinite speed variation it provides. Fig. 13 shows a group of stands and spindles which revolve about a vertical axis, and other equipment of a centrifugal casting shop producing small castings. These machines are suitable for production of ferrous and nonferrous castings.

Mold design for centrifugal casting varies, depending upon the casting desired and the type of machine used in the casting process. The

# **ORDNANCE PRODUCTION METHODS**

**A Collection of Articles Published in MACHINERY  
Describing Manufacturing Operations on Rifles and  
Small Arms, Machine Guns, Bullets, Shells, Cartridge  
Cases, Guns, Bombs, Tanks and Other Weapons of War**

**Edited by  
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# Manufacturing Watertown

By  
COL. ROLLAND W. CASE  
Commanding Officer



Fig. 1. (Left) This Hugo Gear Planing Machine Has a Faceplate 33 Feet in Diameter

THE centrifugal casting of gun tubes and their cold-working by the application of hydraulic pressure on the internal surfaces constitutes one of the most outstanding manufacturing developments of the Ordnance Department during recent years. The operations involved in this highly interesting process were developed and are now being performed in the shops of the United States Arsenal at Watertown, Mass. All information concerning the operations is, however, strictly confidential and this article, therefore, will be confined to manufacturing processes that are somewhat less spectacular, but fully as important in keeping the United States Army equipped for maximum fighting efficiency.

One of the important functions of an arsenal is to serve as a laboratory during peacetime for the development of manufacturing methods that can be adopted immediately, in case of war, by private industrial plants called upon to produce similar munitions. The shops of the Watertown Arsenal

are assigned primarily to the building of medium and heavy gun mounts, which are, of course, required in fairly limited numbers, and so the Arsenal is operated somewhat on a jobbing shop basis. Jigs and fixtures have, however, been provided for repetitive operations to save time and insure interchangeability.

During the last year or so a considerable number of machine tools have been installed to enable the manufacturing program to be accomplished by the most advantageous methods. Typical operations on these new machines and on some of the older ones will be described to show that government manufacturing plants can be operated as efficiently as the shops of private industry if comparable equipment is provided.

What is believed to be the largest gear-cutting machine in the world is illustrated in Fig. 1. This is a Gleason gear-tooth planer, installed primarily for cutting the gears used to train coast guns. The faceplate is 33 feet in diameter, and gears some-



## Preparedness at Arsenal

what larger than this can be accommodated. The internal gear being machined at the time that the photograph was taken was about 10 feet in diameter. Gear teeth can be cut with a circular pitch up to 3 1/2 inches.

The teeth are planed by the reciprocation of a tool-head that is actuated through an eccentric crank. The bed on which this tool-head is mounted can be fed across the front of the faceplate on wide floor ways which are normally kept covered by a wooden platform. Accurate indexing of the gears to insure proper spacing of the teeth is accomplished through an indexing gear about 15 feet in diameter back of the faceplate.

Another machine of outstanding interest is the 350-ton H.P.-M hydraulic press shown in Fig. 2, which is used for straightening gun tubes. A tube for a 3-inch anti-aircraft gun is seen on the machine table. A gun tube of this size is straightened by the machine within 1/82 inch for its entire length. The machine table is stationary, the posts that support the overhead hydraulic pressure unit being mounted on carriages that run on tracks extending along the length of the bed. With this construction, the press ram can be positioned at any desired point along the tube.

The gun tube is supported on rollers at both ends. The rollers at the far end of the bed, as seen in Fig. 2, are provided with a motor drive for rotating the tube between successive applications of pressure. An open pit extends along the back of the machine to enable uninterrupted shifting of the pressure unit. A similar pit at the front is kept covered at all times by telescoping steel sheets.

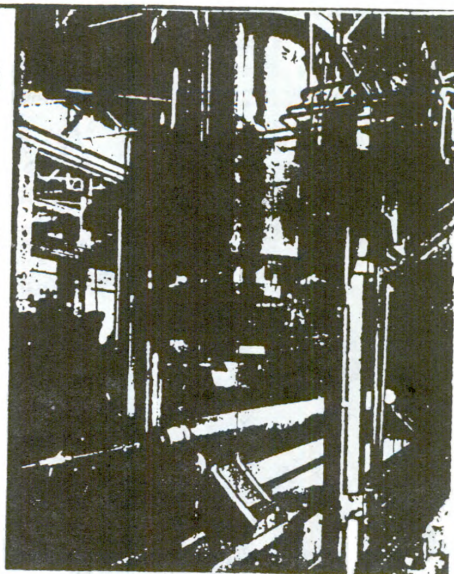
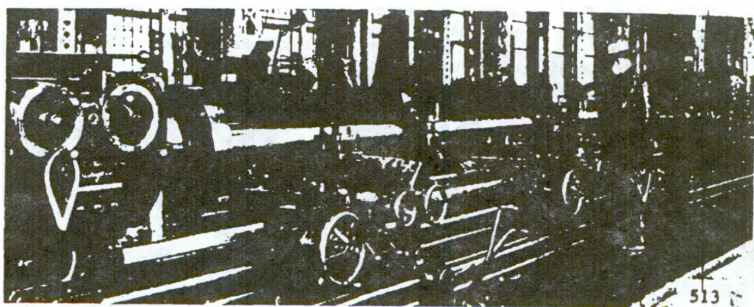


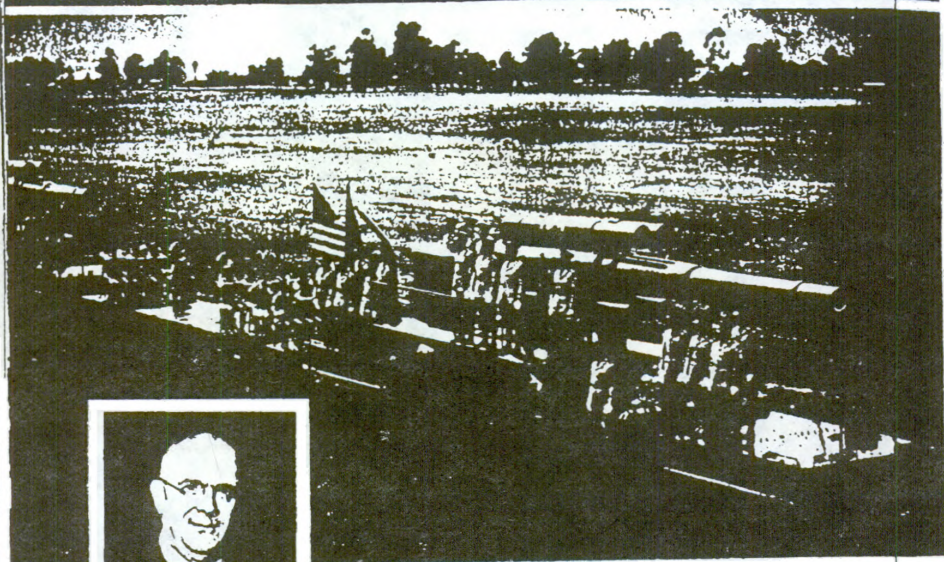
Fig. 2. Hydraulic Press which Develops Pressures up to 350 Tons for Straightening Large Gun Forgings



Fig. 3. Gun Tubes up to 25 Feet Long can be Handled by This "Super" Gun Boring and Turning Lathe



## The Army's Big Guns Are Made at



By COLONEL RICHARD H. SOMERS, Commanding Officer  
Watervliet Arsenal, Watervliet, N. Y.

**W**ATERVLIET Arsenal dates back to the War of 1812, when it was one of a group of depots established between Albany and Buffalo for collecting and distributing the military supplies required in the northern campaign of the United States Army. It immediately became the principal manufacturing establishment for ammunition and field artillery components.

In 1887 appropriations were made by Congress to convert the Arsenal into a large-caliber gun shop, all cannon up to that time having been procured from private concerns. Since 1918 the Arsenal has been equipped for making guns of all sizes above caliber 0.50, including the largest used by the armed forces of the United States Govern-

ment. Articles describing the methods followed in making the huge 16-inch guns and their breech mechanisms appeared in *MACHINERY* for November and December, 1928.

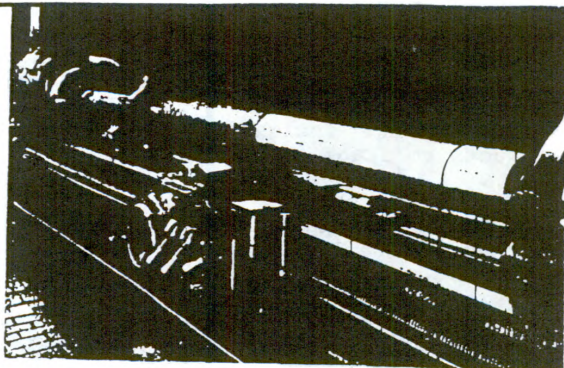
The important part played by aircraft in modern warfare has given an impetus to the manufacture of anti-aircraft cannon. It was decided to equip one of the shops at Watervliet Arsenal for this work, and since 1935 about \$1,000,000 has been expended for modernizing this shop. It is now being operated on a real production basis. Typical operations will be here described.

Centrifugally cast steel gun tubes are received from the Watertown Arsenal and gun forgings from private plants with preliminary turning op-



## Waterliet

*Fig. 1. Gun Tubes are Rough-turned with Tungsten-carbide Tools at Speeds up to 260 Surface Feet per Minute with a Cut up to 3/8 Inch Deep and a Feed of 0.020 Inch*



erations having been performed. They are again rough-turned at the Waterliet Arsenal, Fig. 1 showing an operation of this type being performed in a Lodge & Shipley lathe on a 150-inch long tube for a 3-inch anti-aircraft gun. In the roughing operation on the tough material from which this gun tube is made, a carbide tool takes a cut up to 3/8 inch deep at a speed of 258 surface feet per minute, the feed being 0.020 inch. The maximum diameter of this gun tube is 9.400 inches.

Rough-turning is followed by step-boring and rough- and finish-taper boring, after which the gun tubes are finish-turned. Step-boring is accomplished by using 14 hog-nose reamers, which leave a series of cylindrical bores that decrease in diameter from the breech to the muzzle end. The tube is thus prepared for taper boring. The taper boring operation illustrated in Fig. 2 is being performed in a LeBlond lathe equipped with a bed approximately 60 feet in length. In both rough- and finish-boring, use is made of long packed-bit reamers constructed with a steel arbor to which two long cutting blades are attached, and hard maple blocks that are made to a diameter slightly larger than the gun bore. The maple blocks are squeezed into the bore and thus hold the tool firmly.

The gun bores are tapered 0.005 inch per inch of length and so several taper reamers must be used to bore a gun tube for its entire length. In the operation shown, a taper reamer 31 inches

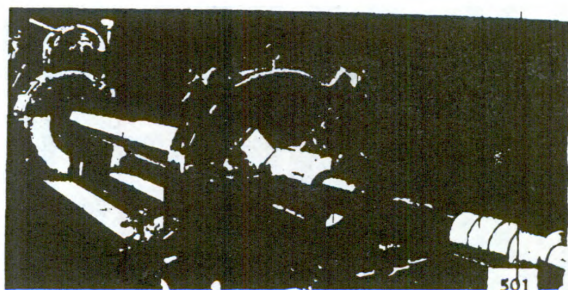
long is being entered into the breech end of a 3-inch anti-aircraft gun for boring the muzzle end. Twelve taper reamers are required for roughing and finishing this gun tube. Each reamer is provided with a brass cylindrical pilot at the front end which engages the rough bore.

Oil at a pressure of 100 pounds per square inch is forced through the long tool-bar and discharged through a number of orifices along the cutting blades. The gun tube bore tapers from 4.584 inches at the muzzle end to 6.119 inches at the breech end. Limits of plus 0.002 inch minus nothing must be maintained on the internal diameters, which are checked every inch of the gun length.

A thread of modified Acme form, 0.20 inch deep and of 0.750 inch pitch, is being chased on the end of a gun tube in Fig. 4 to receive a breech ring, the operation being performed in a Lodge & Shipley 36-inch lathe. In the illustration a form cutter is shown being used for rough-cutting the thread. In taking the finishing cuts, different tools are used for the bottom of the thread, the pressure side and, finally, the clearance side.

These gun tubes are later ground on a long Norton cylindrical grinding machine, as shown in Fig. 5, along the section that will be supported by the recoil cradle of the gun mount. The nominal diameter of this section on the gun tube shown is 9 inches. This diameter must be held within minus 0.005 inch plus nothing.

*Fig. 2. The Tapered Bore of Anti-aircraft Gun Tubes is Finished by the Use of a Succession of Packed-bit Two-bladed Reamers*



### **Background on BNL Loans to Iraq**

The former employees of the Atlanta branch of Banca Nazionale del Lavoro loaned or committed over \$4 billion to Iraq between 1985 and August, 1989. Roughly \$2 billion went to pay for agricultural goods and the freight costs associated with delivering those products to Iraq.

Between February of 1988 and April of 1989, BNL committed \$2.155 billion in loans to Iraq which was earmarked for the purchase of Western equipment, technology and know-how. By the time BNL was raided by the FBI and the Federal Reserve in August of 1989, all but \$600 million of that amount had been disbursed. The remaining \$600 million was renegotiated in January of 1990, and disbursements were made under that agreement up until the time of the Iraqi invasion of Kuwait.

Four billion dollars is a large amount of money for a small country afflicted with serious financial difficulties. Few commercial banks besides BNL were willing to lend money to Iraq without a government guarantee. BNL was by far Iraq's largest source of private credit.

The following provides a more in depth look at the \$4 billion in BNL loans to Iraq with a concentration on the \$2.155 billion earmarked for Iraqi purchases of Western technology. Future Committee work will focus on the agriculture side of BNL loans to Iraq.

#### **\$2.2 Billion in BNL Loans to Two Iraqi Commercial Banks**

With over \$43 billion in assets, the Rafidain Bank was the second largest bank in the Middle East prior to the Iraqi invasion of Kuwait. It is the largest of two commercial banks in Iraq, the other being the Rasheed or Rashid Bank. Both are owned directly by the Iraqi government and several of the directors of these banks are also employees of the Central Bank of Iraq or other Iraqi government entities.

The former employees of BNL loaned the Rafidain Bank \$2.14 billion dollars. About \$1.9 billion was utilized for agricultural purchases with the remaining amounts used to pay for freight charges, and other goods and services. Up to \$900 million of those loans were guaranteed by the U.S. Department of Agriculture's Commodity Credit Corporation (CCC).

BNL loaned the Rasheed Bank roughly \$70 million to cover freight charges on exports to Iraq and for other goods and services.

### **\$2.155 billion in BNL loans to the Central Bank of Iraq (CBI)**

Former employees of the Atlanta office of BNL had developed a close working relationship with high-level Iraq government officials due to the over billion dollars worth of U.S. agriculture exports financed that were financed by BNL under the CCC credit guarantee programs.

As the war with Iran was drawing to a close in 1988, BNL Atlanta was asked to take a considerable role in the Iraqi reconstruction program by financing non-commodity exports to Iraq. This was to be accomplished through a series of loan agreements guaranteed by the Central Bank of Iraq (CBI). While these loans were supposed to help rebuild the Iraqi civilian economy, many went to improving the Iraqi war machine.

BNL loans to CBI took the form of four medium-term loan agreements (MTL's). These loans were made at marginal interest rates and had indefinite repayment terms. BNL was able to borrow such large amounts of money because it is owned by the Italian government and had a triple-A credit rating.

Officials from CBI and the Ministry of Industry and Military Production (MIMP) signed the loan agreements for Iraq. Two BNL officers signed the first three agreements, while the last was signed by just one officer. That same officer also made \$120 million in oral commitments to various companies under MTL IV.

The four MTL's are summarized below.

<u>Note</u>	<u>Date</u>	<u>Amount</u>
MTL I	2/22/88	\$200 million
MTL II	10/6/88	\$300 million
MTL III	12/3/88	\$500 million
MTL IV	4/8/89	\$1.155 billion

### **Disbursements Under Options A, B & C**

By the time regulators raided BNL a majority of the loans, about \$1.6 billion, had already been disbursed. Disbursement was carried out under one of three options.

Option A consisted of BNL making direct payments to an exporter. \$809 million was disbursed under this method. This was a burdensome way for BNL to loan money to Iraq. They had to gather considerable documentation from the exporter to make sure the goods were shipped to Iraq. This method also identified BNL as lending money to Iraq. Because BNL's management had limited BNL-Atlanta lending to Iraq to \$100 million in CCC-guaranteed agriculture

loans, and \$50 million to the CBI if it was fully collateralized, the more people that knew about the BNL loans, the riskier it became. Thus, option B was devised.

In order to lessen the paperwork burden, and most importantly, to disguise BNL as a source of funds to Iraq, a second method of disbursement was devised under which BNL would simply take money out of its bank account at Morgan Guarantee Trust Company in New York and then deposit the money in Iraqi bank accounts at Manufacturers Hanover Trust, Irving Trust Company, Bankers Trust Company and Chase Manhattan Bank. \$693 million was disbursed under this method. Exporters receiving payment from CBI under Option B would never have to know that BNL was the source of funds. CBI simply sent a telex to BNL containing the exporters name, a very cursory description of the goods to be exported to Iraq, and the amount to be transferred to the CBI accounts at the above New York money center banks.

The third option, option C, was comprised of BNL receiving a phone call in Atlanta from Baghdad requesting BNL transfer sums ranging from \$10 million to \$36 million, to Iraqi bank accounts in New York money center banks. In total, \$107 million was disbursed to Iraq using this method. BNL employees had little, if any, idea how this money was going to be used.

After the raid on BNL, Iraq still insisted that BNL make good on the remaining \$600 million in loans still outstanding under the MTL's. After months of intense negotiations in which Iraq often threatened to default on the loans, on January 24, 1990, BNL and Iraq renegotiated the \$600 million. They agreed that the residual \$600 million or so would be utilized for new transactions, two-thirds of which would finance projects, the supplies and services coming from Italian firms and one-third could be used for purchases from other countries.

#### **BNL Loans Go for Western Technology and Know-how**

One purpose of the Committee's investigation of BNL is to explore the implications of over \$4 billion in BNL loans to Iraq. The war with Iran taught Iraq just how vulnerable it was to the shifting policies of nations supplying it with armaments. Iraq was determined to become more self sufficient in the field of armaments. In order to achieve that goal, it had to develop an industrial base advanced enough to produce sophisticated weaponry. It turned to Western nations as the main supplier of that technology and know-how.

Building an industrial base also had the advantage of diversifying the Iraqi economy and making less vulnerable to the often shifting fortunes of the world oil markets. But the long war with Iran left Iraq a heavily indebted nation. If it was to achieve the goals of diversifying its economy and becoming more self sufficient in defending itself Iraq would have to depend on foreign credit.

Because it was in such poor financial condition, Iraq had very little access to credit for the purchase of nonfarm products. BNL was the exception. Over \$2 billion in BNL loans were used by Iraq to procure myriad goods ranging from computer hardware and software, computer controlled lathes, metal presses, heavy machinery, carbide tipped drills, chemicals and chemical plants, steel mills, hard alloy aluminum and steel sheet, tube and coils, armor plate, brass recycling plants, to mobile satellite tracking systems, telecommunications equipment, and engineering services. Much of this technology transfer went into civilian projects. Much did not. The full truth behind the uses of this technology may never be known. One thing is sure: BNL money was the lifeblood of Iraqi efforts to establish an industrial base and to become more self sufficient in the production of various armaments.

To help in obtaining Western technology, Iraq established a secret network of companies and individuals operating in the U.S. and Europe. This network would export goods to Iraq directly, but most often it was simply responsible for finding companies that could supply Iraq with various technology. Under this scenario, the front companies would locate a U.S. or European company that manufactured or provided the desired good or service, and they would in turn put them in contact with persons responsible for various projects in Iraq.

A portion of the BNL money was loaned directly to the members of the secret Iraqi-owned network of companies. The vast majority of the BNL loans were used to pay companies that had been recruited by the network to export goods and services to various projects in Iraq.

At today's hearing, witnesses will identify firms and individuals that made up the secret Iraqi procurement network in Europe and the U.S.. Others will explore the procurement goals of the network, share their experiences in dealing with the network, and talk about the success Iraq achieved in obtaining Western technology and know-how.

In order to understand the effect the BNL loans had on Iraqi efforts to obtain Western technology, the Committee has compiled a list of companies that were the beneficiaries of BNL loans to Iraq.

#### **Notes on the List**

The information in the list was gleaned from BNL records including loan files created by the former BNL employees, telexes between BNL-Atlanta and Iraq, disbursement records, bank account statements, and other records maintained by the former employees of BNL. Other sources were also used. The description of the goods or services and the dollar amount of those goods or services is based on the records created either by the exporting company, the former employees of BNL or the Iraqi's themselves.

It is safe to assume that the companies listed either had contracts to export or re-export their goods or services to Iraq or were at various stages in the process of exporting their goods or services to Iraq.

Some of the listed goods and services may not have reached Iraq. Reasons range from Iraq or the company canceling the export, to the embargo on dealing with Iraq, or as a result of the BNL scandal.

Many of the companies listed did not even know they were the beneficiary of BNL loans to Iraq. For example, BNL disbursements under options B or C went into Iraqi bank accounts. Iraq would then pay the exporter directly. The exporter would have no idea BNL was involved. Approximately \$800 million in exports to Iraq were paid for under this method.

Another roughly \$800 million in BNL disbursements went to the exporter's bank account(s) and thus the exporter knew BNL was the source of the funds. The Committee does not have records on the remaining \$600 million or so in binding BNL commitments to Iraq earmarked for nonfarm exports. This money may or may not have been disbursed by BNL by the time the war with Iraq started.

The value of individual exports is listed by the currency specified in the BNL records. When disbursement amount was evident, it is listed. Many of the amounts contained in the list do not represent amounts actually disbursed. For reasons listed above, contracts may not always have been fully consummated. Thus, dollar amounts listed may not reflect those amounts actually disbursed under an individual contract to export to Iraq.

Investigators made an effort to classify companies by the country in which they are headquartered.



# BENEFICIARIES OF BNL-ATLANTA LOANS TO IRAQ

Company	Product	Amount
<b>AUSTRIA</b>		
AMS Handels	Reflective Panels for Road Studs	ASCH 7,303,900
Climex Handels	Machines	ASCH 34,501,838
Engel Vertriebs	Injection Moulding Machines	ASCH 21,156,476
Hydrotechnik	Water Treatment Plant	ASCH 21,281,800
Lenzing AG	Polyethylene Production Plant	ASCH 200,000,000
Lenzing AG	Polypropylene Production Plant	ASCH 172,000,000
Petrochemie Dunubia/Amman Resources	Polypropylene Granules	USD 6,400,000
Rosendahl Maschinen	2 Continuous Vulcanization Lines	
<b>BELGIUM</b>		
Comelec SA (Schreder S.A. Subsidiary)	Light Fittings	BFR 69,482,000
Maison F Mathieu NV	Steel Strips	BFR 40,536,350
Mobil Petrochemical	Chemicals & Allied Products	USD 2,547,566
SKF Intertrade S.A.	Steel Balls, 415 tons	BFR 40,888,000
Space Research Corp.	?	?
Trane Equipment Sales	2 Centrifugal H2O Cooled Chillers	FFR 2,361,732
Trane Equipment Sales	Air Handling Unit	FFR 16,166,089
Trane Equipment Sales	Air Cooled Reciprocating Chiller	FFR 9,786,797
<b>BAHRAIN</b>		
Gulf Industrial Investment Co	?	USD 47,250,000
<b>BULGARIA</b>		
CE (Kintex)	Total Credit Line	USD 30,750,000
CE (Kintex)	Technology Transfer - Telecommunications Equip.	USD 343,338
CE (Kintex)	Know how & masking	USD 1,301,500
CE (Kintex)	Know how	USD 243,770
CE (Kintex)	Machines	USD 1,863,750
CE (Kintex)	Goods & Services	USD 1,827,862

CE (Kintex)	Soldering Iron Equipment	USD 330,500
CE (Kintex)	Battery Chargers	USD 1,870,783
CE (Kintex)	Know-how	USD 333,370
CE (Kintex)	Welding Machines	USD 2,500,000
<b>CANADA</b>		
Canadian Commercial Corp.	?	USD 14,000,000
Howe International Ltd	Thinshell Dome Technology	USD 2,750,000
<b>CZECHOSLAVAKIA</b>		
TechnoExport Foreign Trade Co	Production Asst w/Heavy Engineering Equipment Factory	USD 96,390,674
TechnoExport Foreign Trade Co	Hand Machine Tools	USD 3,000,000
<b>ENGLAND (UK)</b>		
AGS Industrie Cheam	Electrical Steel Strip	?
Avon Industrial Polymers Ltd	Factory for Automotive Hoses	PS 2,000,000
Avon Technical Services Ltd	Technical Services	USD 5,570,000
BiWater Process	Chemical Plant and its Utilities Equipment	PS 11,200,000
BP Chemicals Ltd	Product License for Polyethylene	USD 23,400,000
British Steel Tubes Export Ltd	Carbon Steel Pipes	PS 390,743.90
Brown Engineering Ltd	Sand & Gravel Plant	PS 1,312,020
Concept Coated Steel Ltd	Precoated Steel Strip	PS 867,970
Concept Coated Steel Ltd	Precoated Steel Strip	PS 867,538
Davy Morris Ltd	Machines for Crane Manufacturing Project	PS 982,403
Davy Morris Ltd	Machines for Crane Manufacturing Project	PS 928,370
Dorman Smith Switchgear	Electrical Materials	PS 424,536
Gatewood Engineers	Dump Truck & Spares	USD 12,541,179
Gatewood Engineers	Vibratory Compactors	USD 1,326,637
Grove Coles Ltd	Hydraulic Truck-mounted Cranes	PS 2,785,100
Klockner Moeller Ltd (1)	Switchboards Subdistribution Board	PS 1,562,712
Leigh Pollution Control Ltd	Internal Coating Equipment	PS 571,876
Matrix Churchill Ltd	Batch Plant & Feeder Equipment	USD 14,300,000
Matrix Churchill Ltd	CNC Machining Center & CNC Lathes	PS 8,950,000
Matrix Churchill Ltd	Machines Kits Supply	PS 3,430,480

Matrix Churchill Ltd	Material & Services for Die Project	DM 10,690,000
MetroTech Ltd	?	USD 892,281.90
Munradtech	Welding Machine	USD 17,896
Pirelli General	Hi & Low Tension Multicore Cables	PS 380,000
Power Technic Ltd	Carbon & Stainless Steel Pipe Fabrication Factory	PS 4,400,000
Project Management	Coating Materials & 3000 tons Coal Tar Enamel	PS 955,090
SKS Plant & Equipment Ltd	Semit Manufacturing Material	PS 298,339
Thorn Lighting Ltd	Lighting Fixtures Poles & Exhaust Fans	PS 224,500
T.D.G Tech. & Develop. Group	Special Materials	USD 2,420,000
T.D.G Tech. & Develop. Group	2322 tons Cold Drawn Seamless (steel?)	PS 756,778
T.D.G./Matrix Churchill	Hot Forging Dies Project	DM 81,000,000
T.E.G.	Raw Materials	PS 1,658,804
WYKO Equipment Ltd	Building Drums for Tire Manufacturing	PS 194,000
FRANCE		
Butec Engineering	Preengineered Building	USD 7,749,474.60
Creusot Loire Industrie	Armored Steel	FFR 21,165,000
Eino SA	Accessories for Comm Equipment	FFR 30,600,000
Fosoco	?	FFR 687,500
G2M	Painting Line for Window Splitan and CAC	FFR 9,863,400
International Trading Group	Unwinding Chocke	FFR 6,250,000
International Trading Group	Electrical Materials	FFR 3,007,125
International Trading Group	Nickel Mesh	FFR 7,280,000
Merlin Gerin	Low Voltage Distribution Boards & Spares	FFR 2,000,000
Merlin Gerin	Electrical Materials	FFR 11,900,000
Merlin Gerin	Electrical Equipment	FFR 13,475,350
Petitejean	Lighting Poles Project	FFR 1,517,511
Potain	5 Cranes	FFR 42,041,800
Promat Industries	Machines & Equipment	FFR 4,900,000
Telemecanique	Electrical Materials	FFR 4,539,696
Thomson CSF	Electronic Components	FFR 25,096,500
Vibracho Parc D.Activities		

GERMANY		
Air Prod. & Chem Inc	Tertiary Amine Catalyst, 10MT	USD 138,400
Alfred Tenes & Gesghoff/Sbereich	Cooling System w/Pipes	DM 2,115,000
Alloy Pipe & Metal	Various Steel Plates & Materials	DM 18,724,708
Alloy Pipe & Metal	Raw Material	DM 7,436,979.50
Alnost Allgemeine	Capacitors	DM 3,300,000
Alriwo	Aluminum Coils, 2700 tons	DM 19,985,650
ASEA Braun Boveri	Industrial Furnace Melting System	DM 3,273,565
BASF	General Purpose Polystyrene, 100 MT	USD 338,500
Bayer	BBP, 100 MT	USD 266,000
Bayer	Chemicals	DM 1,598,750
Bomag Menck	Self-propelled Vibratory Rollers	DM 964,800
Carl Schenck	Balancing Machine for AC motor	DM 140,859
Carl Schenck	Hard Bearing Universal Balancing Machine	DM 111,465
Dorr Oliver	3 Foundry Sand Processing Plants	DM 8,200,000
EE Schwender	Tools	DM 2,923,256
Ferrostaal AG	Raw Materials	DM 2,652,246
Friedrich Deckel	5 units Universal & Boring Machines	DM 2,407,363.75
Friedrich Deckel	4 Milling Machines w/Spares	DM 755,745.01
Goldschmidt	Silicon Oil, 50 MT	USD 479,900
Guhring Postfach	Tools	DM 3,797,262
HKS Hahn & Kolb	?	USD 4,997,000
Havert Industrie	Steel Bars, flat & round	DM 588,843.45
Hertel	Carbide Cutting Tools	USD 8,547,644
Hoesch	Metal Pieces	DM 231,510
Hoesch	Spiral Pipe Fabrication machinery	DM 34,500,000
Hoesch	Polyethylene Coating Equipments	DM 10,500,000
IBK Industrie	?	DM 1,456,835
Inwako	Aluminum Tubes	DM 2,430,000
Klockner Industrie Anlagen	Steel Section, 17,477 tons	DM 16,093,280
Klockner Industrie Anlagen	Machines & Equipment for Utilities	DM 17,400,000
Klockner Industrie Anlagen	Metionary & Equipment	DM 17,344,000
Krupp-Widia	Cutting Tools	USD 2,672,075

Kunkel Wagner	Moulding Lines	DM 11,000,000
Lenk Consulting Co	Newspaper Machine	DM 16,500,000
Lurgi GmbH	Demineralization Plant	DM 5,100,000
Mannesmann Demag.	Crawler Drills, Air Compressors, & Spares	DM 5,818,666
Mannesmann Demag.	Computer Equipment	?
Mannesmann Handel	4 Schwing Truck Mounted Concrete Pumps	DM 1,822,320
Mannesmann Handel	Stainless Steel Pipe Fittings & Valves	DM 3,324,684
Mannesmann Handel	Hot Rolled Steel Coils, 40,000 MT	DM 38,720,000
Mannesmann Handel	10 Schwing Truck Mounted Concrete Pumps	DM 4,555,800
Mannesmann Handel	Steel Pipes	USD 7,380,135
Maschinenbau Scholz Co. LTD	V-belt Project	DM 4,500,000
Maschinenbau-Gesellschaft	Cast Ductile Iron Pipe	USD 1,700,000
Maschinen Fabrik Niehoff	Drawing lines for Cable Project	USD 1,861,815
Metalgesellschaft	?	DM 4,140,000
Neue Magdeburger Werk Zeumaschinenfabrik	6 Center Drive Lathes	DM 7,750,000
Rodio Keller	Technical Assistance	DM 13,420,536
Schwabishe Huttenwerke	3 Universal Milling & Boring Machines	DM 3,500,000
Siemens AG	11/04 KV Substations	DM 19,000,000
Siemens AG	Cathode Production Equipment	DM 3,450,000
Siemens AG	Light Switch & Distribution Boards	DM 4,500,000
Siemens AG	Cables	DM 5,966,320
SMS Hasenclever	Machines, Equipment, Spares, Training, Supervision	USD 16,000,000
Stolberger Maschinenfabrik	7 Machines for Cable Project	USD 5,139,302
Terramar GMBH	Control Truck Chassis	DM 1,102,578
Thyssen Rheinstahl Technik	Steel Materials, 5917 tons	DM 5,414,062
Thyssen Rheinstahl Technik	Rotary Forging Plant	DM 63,500,000
Thyssen/Lummus Crest - Joint Venture	Spare Parts & Chemicals	USD 10,500,000
Thyssen/Lummus Crest - Joint Venture	Spare Parts & Chemicals	USD 6,500,000
TPS---Techitube Rohrenwerke	Magnetic Steel Strip	DM 1,582,000
Unionmatex	Complete Plant	DM 29,300,000
Wanzke	Hydraulic Presses	DM 3,683,306
Wanzke	Equipment & Dies for A/C Body	DM 580,000
Weco Industrial Products	Special High Grade Zinc	USD 3,530,000

<b>INDIA</b>			
HMT International Ltd	Tooled Up Automatic Machines		DM 2,125,940
Kudremukh Iron Ore Co Ltd	Iron Ore Pellets, 90,000 tons		USD 3,231,900
<b>ITALY</b>			
APV Chemical Machinery	?		USD 2,395,516
Ajax	Cooling Tower		ITL 981,814,600
C.M.B. Costuzioni Meccaniche Bernardini	Bleaching, Deodorizing, etc Plant		USD 898,000
CTIP Compagnia Tecnica Int. Progetti	Engineering Material & Construction Supervision		USD 4,750,000
Conser Spa	?		USD 500,000
Danieli	Rolling Mill for Steel Plant		DM 126,000,000
Endeco—Barazzuol Joint Venture	Steel Pipe Plant		DM 159,370,000
Euromac European Manuf Center	Various Tools		ITL 56,951,410
Icomsa Engineering Costruzioni	Fiber Board, 25,000 pieces		DM 1,076,750
Innse Innocenti	45 Rolls for Section Mill		ITL 2,439,280,000
Innse Innocenti	Hard Aluminum Alloy Press		DM 24,975,330
I.S.T. Spa	Shipping & Forwarding		USD 314,460
Marangoni Meccanica Spa	Complete Moulds & Accessories		PS 4,696,000
M.E.S Mechanical Engineering Systems	Various Parts		USD 129,054
Montefluos, Spa	Freon II, 200 MT		USD 447,744
Necchi Compressori	Spare Parts		DM 7,000,000
Officine Meccaniche Pavese	Production Line for Motors		ITL 3,380,409,000
OMAV Spa	Aluminum Hard Alloy Foundry Plant		ITL 7,800,000,000
Press Industrial, Spa	?		USD 1,250,000
Technimont	Engineering for Polypropylene Plant		USD 7,000,000
<b>JAPAN</b>			
Best Corporation	Nickel Cadmium Batteries		Yen 61,080,000
Best Corporation	Assembly Line for A/C & Heat Exchangers		Yen 925,000,000
Best Corporation	Manufacturing Equipment for CAC		Yen 990,000,000
Juki Corp.	Overlook Sewing Machines, 2826 pcs		USD 1,519,540
Juki Corp.	Overlook Sewing Machines, 2826 pcs		USD 927,719
Makita Electric/Hitachi Koki	Electronic Hand Tools, 41,638 Kgs		USD 1,345,000
Nichimen/Maruchi Steel Tube Co	Galvan Steel Conduit Tube, 250,000 pcs		USD 1,062,500

Nichimen/Maruchi Steel Tube Co	Galvanized Steel Tubing, 1 mil pcs	USD 2,915,000
Nichimen/Maruchi Steel Tube Co	Galvan Steel Conduit Tube, 214,000 pcs	USD 21,250,000
Nichimen/Maruchi Steel Tube Co	Galvan Steel Conduit Tube, 250,000 pcs	USD 725,000
Nippon Chemical Trading Co.	16 tons Escorrez 1102 Eql.	USD 20,480
Sharp	Sharp Plain Paper Copiers, 100	USD 1,030,824
Sharp	Materials for Copiers	USD 444,458
Sharp	Operating Materials for Copiers	USD 467,864
Sharp	Spare Parts for Copiers	USD 494,456
Sharp	Operating Materials for Copiers	USD 558,856
Sharp	SF-8100 Copiers w/Operating Materials, 70	USD 721,579
Sharp	SF-8100 Copiers, 200	USD 2,021,200
Sharp	SF-8100 Copiers, 300	USD 2,529,834
Sharp	SF-8100 Copiers	USD 55,042
Toyo Menka Kaisha Ltd	132/11 KV Mobile Substation	Yen 1,150,000,000
<b>JORDAN</b>		
Mastini Ma Jali Trading Co	?	FFR 3,200,000
<b>KOREA</b>		
Hyundai	Copper Strip, 500 MT	USD 1,927,320
<b>LUXEMBOURG</b>		
Campaigne Europeenne de Sud (COMSUD	Rolled Steel	USD 4,500,000
<b>NETHERLANDS</b>		
Hessen Technocom	Automatic Chain Feeding Systems for Poultry	USD 4,871,750
Melchermie Holland	Zinc Oxide, 150 Tons	FL 558,750
Rossmark Van Wijk & Boerma	Water Purification Plant	FL 5,000,000
Sembodja Holland	Carbon Black SRF N 762, 300 tons	USD 252,000
<b>SAUDI ARABIA</b>		
Mohmoud Al Hamoud	Bars, High Tensil Grade, 20,000 T	USD 6,940,000
Sabic Marketing	??	USD 4,050,000

<b>SPAIN</b>		
Trebelan	Nosing, 500 cans	USD 400,000
Zayer	5 Zayer Machining Centers	PTS 303,144,945
<b>SWEDEN</b>		
Byjning Uddemann	Construction & Engineering Assistance	SKR 85,282,125
Elof Hansson	Production Line for Fluting Paper	DM 88,500,000
Volvo International Development	Spare Parts for Kokums Dump Trucks	SKR 3,877,320
Volvo International Development	Water Tank Trucks & Tanks	SKR 2,574,000
Volvo International Development	Units for Volvo Diesel Fuel Pump	SKR 40,663
<b>SWITZERLAND</b>		
Bonaventure (Europe) Inc	Machines, Accessories, & Tools	USD 5,188,582
Bonaventure (Europe) Inc	Raw Material	USD 2,616,000
Buhler Bros. Ltd.	Hydraulic Truck Spare Parts	USD 17,188
Chemap	Equipment, Spares, Technical Assistance, etc	SFR 5,440,000
Dow Trading SA	?	USD 1,350,000
Falma Fabrique Delampes	Production Line for Light Bulbs	SFR 8,109,969
Getrin SA	Two Motors, type G3L & 160 S	USD 10,816
Interagency Bramens Trasse	Machines	SFR 5,530,000
Liebherr Export	Truck Mixers	USD 632K+DM 591
Liebherr Export	Mack Truck Chassis, 30 units	USD 1,894,722
Liebherr Export	Various Types of Hydraulic Excavators	DM 8,468,160
Liebherr Export	Truck Mixers, 30 units	USD 847,421
Liebherr Export	Mack Truck Chassis, 10 units	USD 631,574
Liebherr Export	Truck Mixers, 10 units	DM 530,062
Schaeublin Fabriques de Machines	CNC Machines & Spare & Ready Parts	SFR 7,793,533
Sprecher Energie	132 KV Substation	SFR 13,757,923
<b>TURKEY</b>		
Alemdar Kimya Endustris	Stearic Acid, 250 tons	USD 212,000
Alemdar Kimya Endustris	Stearic Acid, 90 tons	USD 79,380
Armada Foreign Trade Inc	Inner Tube Valves, 300,000	USD 306,000
Atimak Makina	Condensors for Refrigerators & Freezers, 135,000	USD 2,139,000



Beko Teknik	Parts for Color TV 20"	USD 4,975,380
Beko Teknik	Kits for 1 & 2 Band Radios, 500,000	USD 5,150,000
Beko Teknik	Parts for Color TV 20", 24,400 sets	USD 7,591,600
Emsan Emaye/Bektas Bakir Emaye	Copper Wire	USD 828,750
Eregli Demir ve Cielik Fabrikaleri	Steel Cables	USD 3,316,324
Exsa Export	Dipped Nylon Fabric	USD 2,000,000
Organik Kimya	Silicon Emulsion, 20 tons	USD 48,000
Ozer Metal	Copper Material, 24.6 kgs	USD 511,514
Rabak Elektronik	Aluminum Conductor, Steel Reinforced	USD 1,434,000
Tamcam Otocam	Thermo Glass Doors, 20,000	USD 37,800
Tekfen Dis Ticaret	Steel Wire for Bead for Cars, 200 tons	USD 174,000
Tekfen Dis Ticaret	Copper Rods	USD 6,400,000
Yaramica Petrokimya	Butadiene Rubber, 400 tons	USD 420,000
Yaramica Petrokimya	Various Types Carbon Black, 650 tons total	USD 451,000
<b>UNITED ARAB EMIRATES</b>		
Emirates Trading Agency	Freight Charges for Iron Ore from India	USD 1,350,000
<b>UNITED STATES</b>		
AFG Technologies, Michigan (1)	Float Glass Production Plant	USD 52,460,000
ALS Cranetex	Spare Parts	USD 49,656
Akron Standard/Eagle-Picher, Ohio	Tire Testing Machines	USD 1,011,400
Al Haddad, Tennessee	Paper & Board Machine Blades	USD 48,272
Al Haddad, Illinois	Rubber Blankets	USD 67,143
Al Haddad, Tennessee	Reed Cutter Knives	USD 67,494
American Cast Iron Pipe, Alabama	Ductile Iron Pipe	USD 6,000,000
American International	Prepainted Galvanized Steel Coils, 3000 T	USD 3,180,000
American EX-IM, Michigan	Electronic Parts	USD 2,100,000
Amtilan Resources	Polypropylene	?
Applied Research Labs (ARL) (may have be	Spectrometer Metal Analyzer	USD 217,450
Armco Advanced Materials	Silicon Steel Strip	USD 586,214
Assoc. Instrument Distr., Georgia	Carbide Cutting Tools and Inserts	USD 12,161,502
Atlas Copco Compec, N. Y.	Air Compressors	USD 2,260,000
Automation Engineering	Office Equipment (Xerox, Microfiche, etc.)	USD 441,797

A.C. Monk & Company, Inc.	Computing Equipment	USD 19,800
A.O. Smith Electric Products, Ohio	Technical Documents	USD 400,000
A.O. Smith Electric Products, Ohio	Sleeve Bearing	USD 440,000
A.O. Smith Electric Products, Ohio	Sleeve Bearing & A 125 Flinger	USD 220,000
Bechtel, California	Technical Service Agreement - PC2	USD 10,000,000
BRC Commercial Kitchens	Spare Parts	USD 23,604
Breezevale Inc., N.J.	Tires & Tubes	USD 5,249,649
Breezevale Inc., N.J.	Tires & Tubes	USD 683,194
Bristol Myers Intl.	Pharmaceuticals	USD 348,750
Burr Oak Tool & Gauge Co, Michigan	Fin Line Machine & Equipment	USD 1,150,000
Caterpillar	Various Types Heavy Equipment	USD 9,902,605
CDP Intl. Inc., Ohio	A/C Compressors	USD 1,928,505
Centrifugal Casting, Oklahoma	Cast Ductile Iron Pipe Plant	USD 26,337,241
Century II, Wisconsin	Cranes	USD 2,307,088
Ceva Labs, N.J.	Vet Pharmaceuticals	USD 177,550
Cinrock	Spare Parts	USD 33,489
Comtech Systems, Inc.	Mobile Satellite Tracking System	USD 36,000,000
Cooper Industries	Spare Parts	USD 130,815
Cooper Industries	Spare Parts	USD 166,676
Copeland International	A/C Compressors	USD 147,120
Corning Engineering, N.Y.	Spare Parts	USD 266,178
C.S. Johnson Co	Refrigeration Equipment, incl. ice makers	USD \$5,252,355
Dow Chemical	Lorsban & Dursban (chemicals?)	USD 1,497,000
Dow Chemical	Plastics	USD 10,000,000
Drago Supply	Spare Parts	USD 32,248
Draper Corp, S.C.	Spare Parts	USD 96,213
Draper Corp., S.C.	Spare Parts	USD 77,326
Dresser Construction Equipment, Illinois	Wheel Loaders	USD 4,750,530
Dresser Rand	Spare Parts	USD 118,095
Drexel Industries, Pennsylvania	Forklift, Truck	USD 442,050
Duracell	Batteries?	USD 17,171.25
Emco Engineering, Massachusetts	Pressure System	USD 277,833

Emco Engineering Ltd	Sewage Treatment	USD 180,000
Emco Engineering, Massachusetts	Water & Wastewater Treatment Systems	USD 700,000
EMU Inc., N.Y.	Cellophane & Dry Pexol	USD 19,400
EMU Inc., N.Y.	Varnish, Wax, and Paint	USD 326,670
EMU Inc., N.Y.	Various Chemicals	USD 332,820
Entrade, N.Y.	?	USD 3,000,000
Ethylene Corp	Spare Parts	USD 57,564
General Motors, Michigan	Machines, Equipment, & Technical Asst. (1)	USD 114,000,000
General Motors, Michigan	10,000 1990 Olds Cutlass Cierras & spare parts	USD 154,000,000
Goodyear SA, Luxembourg	Tires	USD 4,376,310
Gould Electronics, MA	Controller Modicum	USD 127,942
Gould Electronics, N.J.	Spares for Electrical Equipment	USD 195,614
Glass Inc International, California	Glass-fiber Manufacturing Plant	USD 3,517,819
GTE Valenite, Michigan	Machine tools	USD \$5,062,705
Hewlett Packard, California	Spare Parts	USD 142,055
Hewlett Packard, California	Computer Hardware & Software	USD 2,223,208
ICO Industrial Supply, N.J.	Chemical Materials, 30 tons	USD 172,800
ICO Industrial Supply, N.J.	Bar Compound, 1000 tons, BDG Compound, 1000 tons	USD 3,680,000
ICO Industrial Supply, N.J.	Various Types Carbon Black, 550 tons total	USD 488,750
ICO Industrial Supply, N.J.	Dipped Nylon Fabric, 980 tons	USD 5,682,000
Inductotherm International, N.J.	5 Megawatt Power Tak Melting System	USD 2,730,647
Ingersoll Rand	Spare Parts	USD 137,354
Interx Assoc. Export Corp., N.Y.	Aluminum Billets	USD 2,865,000
Ionics Inc., Massachusetts	Water Treatment Plant (Desalination)	USD 1,375,000
Ionics Inc., Massachusetts	Water Treatment Plant (Deminerallization)	USD 1,780,000
Ionics Inc., Massachusetts	Water Treatment Plant (Deminerallization)	USD 960,000
Ionics Inc., Italian branch	Pretreatment Plant & Raw Water Pipeline	USD 9,550,500
Jetstream of Houston	Spare Parts	USD 26,106
John Deere Co., Illinois	Spare Parts	USD 94,913
Johnson Co., Illinois	Concrete Batching & Mixing Equipment	USD 5,252,355
J.H. Jones	Spare Parts	USD 20,198
Lincoln Electric Co., Ohio	Welding Machines	USD 259,072
Lincoln Electric Co., Ohio	Welding Machines & Spares	USD 840,000
Lindner & Co, Texas	Centrifugal Fans	USD 1,043,190

Lobel Chemical Corp., N.Y.	Herbicide	USD 247,005
Loius Dreyfus Corp	Textiles	USD 14,000,000
Lummus Cres/Thyssen (Germ.)-Joint Vent	Spare Parts, Equipment, Chemicals	USD 6,472,482
Lummus Crest, N.J.	10 Steam Cracking Furnaces	USD 23,827,776
Lummus Crest, N.J.	Ethylene Plant - PC2	USD 30,459,832
Mack Trucks, Pennsylvania	Tractors, trucks, cranes, dumpers	USD 6,422,965
Marnerwood Ltd., Maryland	Cooling Plant Parts	USD 144,884
Masonellian	Spare Parts	USD 278,972
Masten-Wright, Connecticut	Insulating Materials, 282, 987 lbs.	USD 556,038
Masten-Wright/Westinghouse	Diamond Pattern Paper	USD 607,373
Matheson Gas Products	Spare Parts	USD 32,648
Matrix Churchill/Glass Inc Inter, Ohio	Platinum Sponge & Rhodium Powder	USD 2,420,000
Matrix Churchill, Ohio	Machine Tools & Glass-fiber Project	USD 14,300,000
McMaster-Carr	Spare Parts	USD 24,029
McNeil Akron, Inc., Ohio	Tire Manufacturing Machines	USD 1,203,770
McNeil Akron, Inc., Ohio	26 Tube Presses	USD 1,796,448
Med-Tek Intl., N.Y.	C.T. Scanner Parts	USD 448,009
Miller Electric, Wis.	Microwave 300 Amperes, 20 units	USD 67,192
Mobayl Crop Dyes, S.C.	Leather Dyes	USD 59,500
Mobil Oil Corp, N.Y.	Plastics	USD 15,000,000
Moore Special Tool Co (1)	Computer-controlled Jig Grinder	USD 500,000
Munradtech Ltd., Michigan	2 35 ton Dump Trucks	USD 297,926
Nash Intl Co., Connecticut	Vacuum Pumps	USD 313,760
NCR Corp, Ohio	Computers w/ Peripherals & Spares	USD 1,207,036
Norwalk Co. Inc., Connecticut	Power. End Comp. Ass	USD 66,325
N.R.M. Corp., Ohio	Tire Manufacturing Machines	USD 3,310,485
N.R.M. Corp., Ohio	Presses & Accessories	USD 950,000
OHM International Corp	Spare Parts	USD 102,990
Petrogen Intl. Ltd., Virginia	Oxy-Gas Cutting Torches	USD 230,000
Pneumatic Products Corp	Spare Parts	USD 39,411
Posacon, Texas	Valves	USD 132,960
Power Marketing Group, Colorado	Wrapping Materials	USD 599,040
Process Automation	Spare Parts	USD 50,690
Process Electronics	Spare Parts	USD 164,290

Puffer Sweiven	Spare Parts	USD 45,630
Ransome Company, Texas	Arc Welding Equipment	USD 283,193
Rawson & Co	Spare Parts	USD 852,000
RD & D Intl. Inc., Virginia	Machine Tools & Technical Services	USD 3,805,938
Roessing Brass Company	Brass	USD 163,044
Rotec Industries, Inc., Illinois	Cranes, Dumpers with Terex Chassis, Conveyor Belts	USD 18,708,365
Scientific Design Co	Ethylene Oxide, Monoethylene Glycol Plant & Catalyst	USD 5,743,000
Semetex Corp, California	Technology for Fabrication of Semiconductors	USD 7,673,500
Servaas Inc., Indiana	Brass Scrap Refining Plant	USD 32,292,8000
Singer Products, N.Y.	Spare Parts	USD 80,244
Snap-On Tools, Wisconsin	Spare Parts	USD 217,090
Sobray Machine & Equipment Co, Ohio	Machinery Equipment & spares	USD 2,000,000
Sperry International	Computer Hardware & Software	USD 1,351,000
Stork Gamco	Spare Parts	USD 1,050,234
Technical Communication Corp., Massachu	Digital Systems & Services	USD 198,400
Telwar Intl., Tennessee	Paint Solvent & Thinner	USD 179,200
Telwar Intl., Tennessee	Chemical Raw Materials	USD 9,712,000
Telwar Intl., Tennessee	Chemical Raw Materials & Solvents	USD 806,423
Top Value Auto Exporters, N.Y.	Spare Parts for GM cars	USD 700,084
Trading & Ive Corp., N.C.	Air Cooler Parts	USD 352,560
Turtle & Hughes Internat'l	Spare Parts	USD 190,538
Uniroyal Goodrich	744 tons B.D.G. Compound, 748 tons B.A.R. Compound	USD 2,025,000
Upjohn, Michigan	Plastics	USD 10,000,000
Upjohn Worldwide, Michigan	Pharmaceuticals	USD 2,169,950
Videojet System Intl., Illinois	Coding Machine & Parts	USD 45,487
Vinson Supply	Spare Parts	USD 49,168
VWR Scientific, California	Lab Equipment	USD 126,848
West Point Foundry, Georgia	Spare Parts for Looms	USD 63,911
Westinghouse Electric Corp., Pennsylvania	Technical Documents	USD 200,000
Wholesale Electric Supply	Spare Parts	USD 131,977

Wilson Fire Equipment	Spare Parts	USD 73,475
XYZ Options Inc., Alabama	Carbide Tool Manufacturing Plant	USD 14,072,625
Suppliers: Modern Machinery Associates, Alabama		
Pratt & Whitney, Inc		
General Industrial Diamond Co., N.J.		
York International, Penn.	Cooling Tower & Air Handling Units	USD 193,519
Zeta Laboratories Inc., California	Electronic Mats (incl. 10 channel X-band oscillator)	USD 1,105,000
UNKNOWN COUNTRIES		
Bomag Menck (German?)	?	DM 964,800 (2)
B.E.A.	Copper Tubing	USD 9,000,000
B.E.A.	?	USD 10,000,000
Engel Swertzberg (German?)	?	USD 1,944,180 (2)
Icom SA	?	USD 550,682 (2)
Instrubel (Dutch?)	?	USD 27,778,000
Intragency	?	SFR 5,530,000 (2)
MetalChem Internat'l	?	USD 566,128 (2)
Perbadanan	?	USD 3,248,908
Tinkjat Menara (Turkish?)	?	USD 3,248,908 (2)
Witterman	?	USD 895,192

**NOTES:**

- (1) May have been cancelled  
(2) Principal of loan unknown; amount  
shown represents partial payment

**CURRENCY ABBREVIATIONS**

ASCH = Austrian Schilling  
BFR = Belgian Franc  
DM = Deutsche Mark  
FFR = French Franc  
FL = Florin (Netherlands)  
ITL = Italian Lira  
SFR = Swiss Franc  
SKR = Swedish Krona  
USD = United States Dollar

**SerVaas**  
INCORPORATED

April 15, 1991

Dr. Stephen D. Bryen  
President  
Delta Tech  
1111 Jefferson Davis, Suite 801  
Arlington, VA 22202

Dear Dr. Bryen:

I was interested in hearing your comments made at the hearing before the Committee on Banking, Finance and Urban Affairs last Tuesday, April 9, 1991. My plane did not arrive in time for me to meet you before the hearing. As you remember, I arrived after the seven citizen panel members were joined into a single panel by the Committee. Following our presentations I was approached by various news media, as I am sure you were, and I did not have an opportunity to introduce myself to you.

I know that you are a learned person who would wish to be accurate in his pronouncements and statements. Before the hearing, Mr. Dunstan McNichol of the Indianapolis News called you and asked you questions about the brass refining plant that we were building for the Ministry of Industry of Iraq. He reported that you doubted that the plant was to refine the old brass scrap, which included a substantial amount of shell casings containing silicon, for export. In fact, the reporter states that you said that once the old shell brass had been purified, it probably would have been used to make new shells. I am enclosing a copy of the article in which you are quoted.

Because I assume that the reporter did not give you any substantial further detail (as is the wont of reporters) before he asked your opinion, I thought it would be important for you to have a copy of the statement we submitted to the Committee. If the Iraqis intended to utilize the scrap for new shell casings, there would have been absolutely no reason for paying \$40 million for a recycling plant. They owned a new, ultra modern brass plant built for them in the mid 1980s by the Austrians. Soviet designed shells, including shells that were made by Iraq to Soviet specifications, contain silicon. The Iraqis were using their existing, modern facility to melt down the shell casing containing silicon to make new shells.

Commercial brass meeting the Western ASTM and DIN standards, on the other hand, contains no silicon. Our experts were able to discover an old technique to take silicon out of brass. This technology is obscure in the West because our brass specifications do not call for silicon. It is only logical that the sole purpose for the recycling plant and the



Dr. Stephen D. Bryan  
April 15, 1991  
Page Two

removal of silicon is to create a silicon-free brass that was saleable in the West. Our confidence that the plant we were building was to enhance peaceful, commercial purposes, was reinforced by the fact that we assisted the Al-Shaheed Factory personnel in developing an English language Sales Brochure for brass strips, rods, billets, cakes, ingots, pipes/tubes, profiles, and wires. None of these products that the Iraqis were offered for sale contained silicon. We assisted in putting together and working with the Al-Shaheed Factory personnel in the methodology of entering the world brass market.

I appreciate your observation to the Indianapolis News that there should be no criticism of our facility and our undertaking. We do believe, however, that your observation was based upon your assumption that, in fact, the brass was to be used for military purposes and that the United States Government knew that it was going to be used for those purposes. As I have testified before the Committee and we can demonstrate in technical detail, that hypothesis is wrong. The fact is that it would not have been economical for the Iraqi government to incur the cost of removing silicon from brass that was to be reused for shells. The incremental cost of the processing that we were engineering could only logically mean that the Iraqis intended to use this brass on the world market where that extra extraction cost was a necessary cost.

I am certain that as a world noted expert on strategic military issues and as a former assistant Deputy Under Secretary of Defense, you will wish to correct your observation to the Indianapolis News, as it was based upon incomplete information given you. If you have any questions, please give me a call. I would appreciate a response.

Cordially,



Beurt SerVaas  
President

Enclosure

3,9/173



April 19, 1991

RECEIVED

Mr. Beurt SerVaas  
 President  
 SerVaas Incorporated  
 1000 Waterway Blvd.,  
 Indianapolis, Indiana 46202

APR 23 1991

CURT'S CORP  
 BRG 00000

Dear Mr. SerVaas,

Thank you for your letter of 15 April and your observations about my comments to Mr. Dunstan McNichol of the Indianapolis News. I was interested in your statement to the Banking and Consumer Affairs Committee and your explanation of the process you used to remove the silicon from old shell casings. I have no reason to disagree with your explanation. I did not know you had a process to remove silicon from the brass, as that sort of knowledge is not public. On that basis it is clear that the facility you were building in Iraq was for commercial purposes, namely, to allow Iraq to realize commercial benefit from the sale of recovered, silicon-free, brass.

Having said that, the entire situation in Iraq is complex. To begin with, as you point out, the Austrians had already built in Iraq a very large remelting facility for changing old shell casings into new shells. Iraq was completing a huge ammunition facility at Taji. One would think that the supply of old shell casings was finite, not infinite, and the large ammunition factory would absorb all the old shell casings. My assumptions about the additional remelting facility were formed based on the large ammunition manufacturing capability going into Iraq and the collateral requirement for brass and other metals. It was this very large capacity to make ammunition that was of concern in the United States --and, so far as I can learn, became one of the high priority targets during the U.S. bombing raids against Iraq.

With every good wish

Sincerely,

A handwritten signature in dark ink, appearing to read "Stephen D. Bryen", with a stylized flourish at the end.

Dr. Stephen D. Bryen

CC: Mr. Dunstan McNichol, Indianapolis News

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 212-572-6710

**SerVaas**  
INCORPORATED

April 24, 1991

The Honorable Henry B. Gonzalez  
Chairman, U. S. House of Representatives  
Committee on Banking, Finance and Urban Affairs  
One Hundred Second Congress  
2129 Rayburn House Office Building  
Washington, DC 20515

Dear Chairman Gonzalez:

On April 18, 1991, we received a letter from you dated April 11, 1991, requesting a written response to three questions for the official record completing my testimony before your Committee on April 9, 1991. For clarity, I will repeat the question and then provide the answer.

Question No. 1:

At the time BNL was providing the Letter of Credit for your work in Iraq, did you believe that Iraq would have had any trouble finding financing from any other source? Was there any indication that BNL was the only possible source of financing for the project?

Answer:

Before the August, 1989, newspaper expose of the alleged unauthorized activities of the BNL officers in Atlanta, Georgia, we had no relevant knowledge regarding the general credit position of Iraq or the availability of its financing from sources other than Banca Nazionale del Lavoro. As I have previously testified, we were told by BNL personnel that BNL had been utilized by the Republic of Iraq in financing with major United States companies. Once we were able to satisfy ourselves that BNL was a major international bank and that its confirmation of the letter of credit from the Central Bank of Iraq met in all respects the requirements contained in our contract of September, 1988, we did not have need for any further inquiry as to the credit worthiness of Iraq.

Question No. 2:

How likely is it that the Iraqis were planning to use the recycled brass from the factory your company built to make new gun shells or other munitions?

Answer:

According to information that my personnel learned from Iraqi engineers, the formula used by the Iraqis for the production of shell casings included silicon. We understood that this formula followed specifications and standards given to the Iraqis by the Soviet Union. Silicon increased the hardness of the shell casings. Our contract specifically required that we develop a refinery that was capable of removing silicon from

-2-

the scrap brass that the Iraqis had stockpiled. Our conclusion from this contract requirement was that the Iraqis intended to use the refinery for commercial brass production rather than to make new shell casings.

We learned that during most of the Iranian war the Iraqis purchased their shells. During that time the Iraqis had no capacity to recycle those shells. For that reason they accumulated an enormous inventory of spent shells. The Al-Shaheed Factory, completed by the Austrians near the end of the Iranian war, had the capacity to melt down existing shell casings for the purpose of creating new shells. We were told that when making shells the Iraqis were very careful to follow the Soviet specifications, including silicon. We learned that in one instance, several million pounds of "brass cake" were rejected because the cake did not conform sufficiently to the Russian specifications for silicon content.

The existing Austrian built factory also had the capability to produce brass from virgin materials for commercial applications, such as tubing, rod and sheet goods. In turn, these products were used by brass manufacturers for decorative and architectural products, heat exchangers, tubing and bearings.

It has been estimated that the Iraqis would incur an additional cost of approximately \$.15/lb. to refine the scrap shells by removing the silicon to meet Western commercial brass specifications. At that point, the brass would be saleable for hard currency. If the Iraqis intended to re-introduce silicon in the material being refined, they would not build a refinery to do something that could have been done in their existing facilities.

Question No. 3:

Is it practical/economical to use the recycled brass from the spent shells to make door knobs or other commercial products?

Answer:

The attached excerpt from Materials Engineering lists the brass specifications required to sell various types of brass on the general Western commercial market. They specify the absence of silicon. It was estimated to us that Iraq had as much as 70,000 tons of brass scrap, a substantial portion of which were shell casings.

The cost of those shells was a sunk cost, already incurred by the Iraqis; and, therefore, the additional cost of refining the scrap to remove silicon, which has been estimated to be approximately \$.15/lb., was extremely economical and practical.

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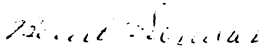
To make any "commercial" brass in the Austrian factory for strictly commercial use, e.g. brass sheet, rod, wire and tubing, it was necessary for Iraq to buy virgin copper and virgin zinc [the primary metals in brass] at world prices, for hard currency for the total input. This is contrary to the practice in industrialized countries, which use up to 85% refined scrap metal [at much lower cost than virgin metal] and the balance only from virgin metals. This anomaly obviously made Iraqi commercial brass non-competitive. Without the ability to refine their surplus scrap brass metal and remove the silicon, the Iraqis could not realize full value for their scrap.

The refined brass ingots from the refinery we were building would have provided another hard currency product to be sold by Iraq, thereby reducing its dependence on oil as its sole hard currency product.

We have attached some brochures that were prepared and utilized for the promotion and future sale of Iraqi brass on the world market to demonstrate the marketing efforts that had been undertaken.

We trust that the above answers will aid your Committee in its deliberations and consideration of these very complex and weighty issues. If there be anything further that we can provide you, we would be most pleased to do so.

Respectfully Submitted,



Beurt SerVaas  
President

Attachment

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## Copper and Its Alloys — Wrought

Type and CDA <sup>a</sup> No.	C10200 Oxygen-Free Copper	C10400, C10500 C10700 Oxygen-Free cop- pers with Silver	C11000 Electrolytic Tough Pitch Copper	C11300, C11400 C11600 Tough Pitch Cop- pers with Silver	C12200 Phosphorus Deox- idized Copper	C14500 Phosphorus Deox- idized, Tellurium Bearing Copper	C14700 Sulfur Copper
<b>PHYSICAL PROPERTIES</b>							
Density (lb/in <sup>3</sup> )	0.323	0.323	0.321-0.323	0.321-0.323	0.323	0.323	0.323
Melting Temperature Range (°F)	1981	1981	1949-1981	1980	1981	1924-1967	1953-1969
Thermal Conductivity, 58°F (Btu/ft·hr·in <sup>2</sup> /°F)	226	224	226	224	196	205	216
Coefficient of Thermal Expansion, 68-572°F (10 <sup>-6</sup> in/in/°F)	9.8	9.8	9.8	9.8	9.8	9.9	9.8
Specific Heat, 58-572°F (Btu/lb·°F)	0.092	0.092	0.092	0.092	0.092	0.092	0.092
Electrical Conductivity (%IACS)	101	101	101	100	35	93	95
Tension Modulus (10 <sup>6</sup> psi)	17	17	17	17	17	17	17
Rupture Modulus (10 <sup>6</sup> psi)	5.4	5.4	5.4	5.4	5.4	5.4	—
Tensile Strength (10 <sup>3</sup> psi)							
Annealed <sup>d</sup>	32-35	32-35	32-35	32-35	32-34 <sup>f</sup>	32-33	32
Hard <sup>e</sup>	45-55	45-55	45-55	45-55	55 <sup>g</sup>	48-53 <sup>h</sup>	48
Yield Strength (10 <sup>3</sup> psi)							
Annealed <sup>d</sup>	10-11	10-11	10-11	10-11	10-11 <sup>i</sup>	10-11	10
Hard <sup>e</sup>	40-50	40-50	40-50	40-50	50 <sup>j</sup>	44-49 <sup>k</sup>	38
Elongation in 2 in., (%)							
Annealed <sup>d</sup>	45-55	45-55	45-55	45-55	45 <sup>l</sup>	40-50	52
Hard <sup>e</sup>	6-20	6-20	6-20	6-20	3 <sup>m</sup>	10-20 <sup>n</sup>	12
Hardness (Rockwell)							
Annealed <sup>d</sup>	F 40-45	F 40-45	F 40-45	F 40-45	F 40-45	F 40-43	F 40
Hard <sup>e</sup>	F 35-35	F 35-35	F 35-35	F 36-34	F 35	F 48-54	F 48
Shear Strength (10 <sup>3</sup> psi)							
Annealed <sup>d</sup>	22-24	22-24	22-24	22-24	22-23 <sup>o</sup>	22	22
Hard <sup>e</sup>	26-29	26-29	26-29	26-29	29 <sup>p</sup>	27-29 <sup>q</sup>	29
Fatigue Strength (10 <sup>3</sup> psi)							
Annealed <sup>d</sup>	11 <sup>r</sup>	—	11 <sup>r</sup>	—	11 <sup>r</sup>	—	—
Hard <sup>e</sup>	13 <sup>s</sup>	—	14 <sup>s</sup>	—	19 <sup>s</sup>	—	—
Creep Strength, 0.1% in 1000 hours (10 <sup>3</sup> psi)							
Annealed <sup>d</sup> , 400°C	4.3	—	4	—	3.3 <sup>t</sup>	3.3	—
500°F	1.7	—	1.5	—	2.7 <sup>u</sup>	3	—
Drawn 34%, 400°F	5	—	4.25	5-11	3.3 <sup>v</sup>	18	—
500°F	—	—	—	3-7	2.5	11	—
Cold Workability	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Excellent
Hot Workability	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Excellent
Hot Working Temp (°F)	1400-1600	1400-1600	1400-1600	1400-1600	1400-1600	1400-1600	1400-1600
Annealing Temp (°F)	700-1200	900-1400	700-1200	900-1400	700-1200	300-1200	300-1200
Machinability index <sup>w</sup>	20	20	20	20	20	85	35
Soldering	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Brazing	Excellent	Excellent	Good	Good	Excellent	Good	Excellent
Oxyacetylene Welding	Fair	Fair	Not rec	Not rec	Good	Fair	Not Rec
Carbon Arc Welding	Good	Good	Fair	Fair	Good	Fair	Not Rec
Butt Resistance Welding	Good	Good	Good	Good	Good	Fair	Good
<b>CORROSION RESISTANCE</b>							
Coppers have high resistance to: rural, marine and industrial atmospheres (but will tarnish, turn black and then form a green patina if sulfur compounds are present); dry gases; fresh and sea water; pure steam; most soils; deaerated non-oxidizing acids; organic acids such as acetic, formic, lactic, citric and malic; alkaline solutions (except those containing ammonium compounds or cyanides); salt solutions such as sulfates and nitrates of sodium, potassium, magnesium and calcium; and many food products. Silver-bearing coppers have slightly higher oxidation resistance than silver-free grades. Coppers are attacked by oxidizing acids and salts; most ammonia and halogen gases; sulfides; liquid Zn, zinc, antimony, bismuth and lead; and high velocity sea water.							
a							
AVAILABLE FORMS <sup>p</sup>	S, s, B, r, P, a	S, s, B, r, P, W, W, T, Sh	S, s, B, r, P, W, T, Sh	S, s, B, r, P, W, T, Sh	S, s, r, P, a, T, T, Sh	B, r, W, T	W, r
USES	Bus bars; bus conductors; wave guides; copper-to-glass seals in electronic applications	Automotive gaskets and radiators; parts brazed in hydrogen atmosphere; bus bars; windings; terminals	Architectural and building uses; automotive gaskets and radiators; bus bars; contacts; switches	Automotive gaskets and radiators; bus bars; contacts; switches; transformer windings	Air, gas, oil and water lines; plumbing pipe and tube; air conditioner, refrigerator, other tubing	Screw machine parts; electrical connectors; motor and switch parts; torchtips	Electric and electronic parts; welding torch and soldering tips; screw parts; high conductivity

<sup>a</sup> Copper Development Assn. <sup>2</sup> 3, 10 and 25 may be, and should be, for CDA 10400, 10500, 10700 respectively, and 11300, 11400, and 11600 respectively. <sup>3</sup> For 0.040 in. thick flat products. <sup>4</sup> For 0.025 mm grain size. <sup>5</sup> For 0.040 in. thick flat products. <sup>6</sup> For 0.025 mm grain size. <sup>7</sup> For 0.040 in. thick flat products. <sup>8</sup> For 0.025 mm grain size. <sup>9</sup> For 0.040 in. thick flat products. <sup>10</sup> For 0.025 mm grain size. <sup>11</sup> For 0.040 in. thick flat products. <sup>12</sup> For 0.025 mm grain size. <sup>13</sup> For 0.040 in. thick flat products. <sup>14</sup> For 0.025 mm grain size. <sup>15</sup> For 0.040 in. thick flat products. <sup>16</sup> For 0.025 mm grain size. <sup>17</sup> For 0.040 in. thick flat products. <sup>18</sup> For 0.025 mm grain size. <sup>19</sup> For 0.040 in. thick flat products. <sup>20</sup> For 0.025 mm grain size. <sup>21</sup> For 0.040 in. thick flat 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<sup>332</sup> For 0.025 mm grain size. <sup>333</sup> For 0.040 in. thick flat products. <sup>334</sup> For 0.025 mm grain size. <sup>335</sup> For 0.040 in. thick flat products. <sup>336</sup> For 0.025 mm grain size. <sup>337</sup> For 0.040 in. thick flat products. <sup>338</sup> For 0.025 mm grain size. <sup>339</sup> For 0.040 in. thick flat products. <sup>340</sup> For 0.025 mm grain size. <sup>341</sup> For 0.040 in. thick flat products. <sup>342</sup> For 0.025 mm grain size. <sup>343</sup> For 0.040 in. thick flat products. <sup>344</sup> For 0.025 mm grain size. <sup>345</sup> For 0.040 in. thick flat products. <sup>346</sup> For 0.025 mm grain size. <sup>347</sup> For 0.040 in. thick flat products. <sup>348</sup> For 0.025 mm grain size. <sup>349</sup> For 0.040 in. thick flat products. <sup>350</sup> For 0.025 mm grain size. <sup>351</sup> For 0.040 in. thick flat products. <sup>352</sup> For 0.025 mm grain size. <sup>353</sup> For 0.040 in. thick flat products. 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<sup>376</sup> For 0.025 mm grain size. <sup>377</sup> For 0.040 in. thick flat products. <sup>378</sup> For 0.025 mm grain size. <sup>379</sup> For 0.040 in. thick flat products. <sup>380</sup> For 0.025 mm grain size. <sup>381</sup> For 0.040 in. thick flat products. <sup>382</sup> For 0.025 mm grain size. <sup>383</sup> For 0.040 in. thick flat products. <sup>384</sup> For 0.025 mm grain size. <sup>385</sup> For 0.040 in. thick flat products. <sup>386</sup> For 0.025 mm grain size. <sup>387</sup> For 0.040 in. thick

Copper and its Alloys—Wrought

Type and CDA No.---	C15000 (Zirconium Copper)	C15500 (Silver Copper)	C17200 (Beryllium Copper)	C17400 (Beryllium Copper)	C18200 (Chromium Copper)	C19400 (HSM Copper)	C21000 (Gilding, 95%)
NOMINAL COMPOSITION, %	Cu 99.3 Zr 0.15	Cu 99.75, Mg 0.11, P 0.05, Ag 0.04	Cu 98.1, Be 1.90	Cu 99.45, Be 0.50, Co 0.25	Cu 99.1, Cr 0.95	Cu 97.5, Fe 2.35, P 0.30, Zn 0.12	Cu 95 Zn 5
PHYSICAL PROPERTIES							
Density (lb/in <sup>3</sup> )	0.323	0.322	0.298	0.318	0.321	0.317	0.320
Melting Temperature Range (°F)	1796-1975	1972-1980	1590-1800	1875-1950	1958-1967	1980-1990	1920-1950
Thermal Conductivity, 58°F (Btu·ft/hr·in <sup>2</sup> ·°F)	212	200	62-75	120-150	187	150	135
Coefficient of Thermal Expansion, 58-572°F (10 <sup>-6</sup> in./in./°F)	9.8	9.3	9.9	—	9.8	9	10
Specific Heat, 58-572°F (Btu/lb·°F)	0.092	0.092	0.10	—	0.092	0.092	0.09
Electrical Conductivity (%IACS)	33	90	22	40-55	80	65	58
MECHANICAL PROPERTIES <sup>1</sup>							
Tension Modulus (10 <sup>6</sup> psi)	18.7	17	18.3	19	17	17.5	17
Tensile Strength (10 <sup>3</sup> psi)							
Annealed	41	40	68	—	34	45	34
Hard	48	52	30-182, 102-152	30-115	—	67	58
Yield Strength (10 <sup>3</sup> psi)							
Annealed	28	18	32, 28	—	15	24 <sup>2</sup>	10
Hard	46-72	57	70-160, 32-125	35-110 <sup>2</sup>	26-77	53 <sup>2</sup>	50
Elongation in 2 in. (%)							
Annealed	34	34	45, 25	—	40	32	45
Hard	49-2	5	2-25, 1-10	4-12	3-40	4	5
Hardness (Rockwell)							
Annealed	—	F70	360	—	316	338	F46
Hard	372	F97	980-99	390-105 <sup>2</sup>	860, 384	873	364
Shear Strength (10 <sup>3</sup> psi)							
Annealed	—	—	50-60	—	—	—	—
Hard	—	—	90-100	—	—	—	37
FABRICATING PROPERTIES							
Cold Workability	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Hot Workability	Excellent	Excellent	Good	—	Good	Excellent	Good
Hot Working Temp (°F)	1650-1740	1400-1500	1200-1500	—	1500-1700	1400-1600	1400-1600
Annealing Temp (°F)	—	900-1000	1425-1475	—	700-1200	300-1450	300-1450
Machinability index <sup>3</sup>	20	20	20	—	20	20	20
Joining							
Soldering	Excellent	Excellent	Good	Good	Good	Excellent	Excellent
Braze	Good	Excellent	Good	Good	Good	Excellent	Good
Oxyacetylene Welding	Not Rec	Not Rec	Not Rec	Not Rec	Not Rec	Good	Good
Carbon Arc Welding	Not Rec	Good	Good	Good	Fair	Excellent	Good
Butt Resistance Welding	Good	Not Rec	Fair	Good	Not Rec	Excellent	Good
CORROSION RESISTANCE							
	Generally good resistance to industrial, rural and marine atmospheres; also gasoline, fuel oils and lacquers. Generally poor resistance to ammonia, ferric and ammonium compounds and cyanides. Good resistance to weak acids and bases; some resistance to strong acids and bases					Generally more res than copper to atmos, aqueous and sulfide environment. High res to stress cor.	Generally similar to C17400, C15000, C17200, C18200
AVAILABLE FORMS							
	Rod, wire	Strip, bar, sheet, plate	Flat products, rod, wire, tube, pipe, shapes	Flat products rod, wire <sup>4</sup>	Flat products, wire, rod, shapes, simple forgings	Strip, welded tube	Strip, wire
USES							
	Commutator segments, slip rings, soldering iron tips, rectifier bases, resistance welding electrodes	Spring, electrical contacts res weld electrodes, fittings, clamps connectors diaphragms	Spring, plunger guides, bushings, bearings, cams, diaphragms, bellows, electrical contacts, res weld electrodes	Spring, elect contacts, conn. sockets, heat sinks, relays sensors	Res weld electrodes and wheels, circuit breaker parts, cable connectors, parts for electronic devices	Electrical and electronic parts, terminals, contacts, architectural uses, condenser tubes, hollowware	Coins, bullet jackets, fuse caps, primers, jewelry, base for gold plate or vitreous enamel

<sup>1</sup>Where two values are shown, the second is for wire. <sup>2</sup>Free-cutting brass is 100. <sup>3</sup>2% oiler. <sup>4</sup>Not hardened temper. <sup>5</sup>Normally available in multi-hardened temper only.

2



## Copper And Its Alloys—Wrought

Type and CDA No.	C22000 (Commercial Bronze, 90%)	C22500 (Jewelry Bronze, 87.5%)	C23000 (Red Brass, 85%)	C24000 (Low Brass, 80%)	C25000 (Cartridge Brass, 70%)	C26000 C27000 (Yellow Brass)
NOMINAL COMPOSITION, %	Cu 90, Zn 10	Cu 87.5, Zn 12.5	Cu 85, Zn 15	Cu 80, Zn 20	Cu 70, Zn 30	Cu 65, Zn 35
<b>PHYSICAL PROPERTIES</b>						
Density (lb./in. <sup>3</sup> )	0.318	0.317	0.316	0.313	0.308	0.306
Melting Temperature Range (°F)	1870-1910	1840-1895	1810-1880	1770-1830	1680-1750	1660-1710
Thermal Conductivity, 68°F. (Btu-in./hr-in. <sup>2</sup> -F)	109	100	32	81	70	57
Coefficient of Thermal Expansion, 58-572°F. (10 <sup>-6</sup> in./in.-F)	10.2	10.3	10.4	10.5	11.1	11.3
Specific Heat, 58-572°F. (Btu/lb.-F)	0.09	0.09	0.09	0.09	0.09	0.09
Electrical Conductivity (%IACS)	44	40	37	32	28	27
<b>MECHANICAL PROPERTIES<sup>a</sup></b>						
Tension Modulus (10 <sup>6</sup> psi)	17	17	17	16	16	15
Tensile Strength (10 <sup>3</sup> psi)						
Annealed	37, 40	39, 40	39, 41	42, 44	44, 48	46, 50
Half Hard						
Hard	61, 74	56, 63	70, 88	74, 107	76	74, 110
Spring						
Yield Strength (10 <sup>3</sup> psi)						
Annealed	10	11	10	12	11	14
Half Hard						
Hard	54	56	57	59	63	60
Spring						
Elongation in 2 in. (%)						
Annealed	45, 50	46, 44	48, 48	52, 55	56, 54	55, 50
Half Hard						
Hard	5, 4	5	5, 3	7, 5	9	3, 5
Spring						
Hardness (Rockwell)						
Annealed	F53	F55	F56	F57	F54	F58
Half Hard						
Hard	370	873	977	982	982	980
Spring						
Shear Strength (10 <sup>3</sup> psi)						
Annealed	28	29	31, 31	32, 22	—	32, 24
Half Hard						
Hard	38	40	42, 48	43, 23	44	43, 55
<b>FABRICATING PROPERTIES</b>						
Cold Workability	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Hot Workability	Good	Good	Good	Fair	Fair	Poor
Hot Working Temp (°F)	1400-1600	1400-1650	1450-1850	1500-1650	1350-1550	—
Annealing Temp (°F)	800-1450	800-1400	800-1350	300-1300	300-1400	300-1300
Machinability index <sup>b</sup>	20	30	30	30	30	30
Joining						
Soldering	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Brazing	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Oxyacetylene Welding	Good	Good	Good	Good	Good	Good
Butt Resistance Welding	Good	Good	Good	Good	Good	Good
<b>CORROSION RESISTANCE</b>						
	Generally good resistance to industrial, rural and marine atmospheres; also gasoline, fuel oils and lacquers. Generally poor resistance to ammonia, ferric and ammonium compounds and cyanides					
	Good resistance to weak acids and bases.	Good res to weak acids and bases. High res to de-zincification and str corr cracking	Susceptible to dezincification and stress corrosion cracking	Good resistance to weak bases; some resistance to strong bases and weak acids	Some resistance to weak acids and bases; poor resistance to strong acids and bases. Poor resistance to salt and high salinity water	
<b>AVAILABLE FORMS</b>						
	Rolled sheet, strip, plate, rod, wire, tube	Wire, strip, flat wire	Strip, sheet, wire, tube, plate	Wire, strip, flat wire	Strip, bar, flat wire, sheet, rod, wire, tube	Strip, flat wire, sheet, plate, rod, wire
<b>USES</b>						
	Grillwork, cosmetic compacts, marine hardware, primer caps, costume jewelry base or vitreous enamel	Architectural angles and channels, hardware, compacts, costume jewelry base or gold plate	Weatherstrip, electrical sockets, fasteners, heat exchanger tubes, flexible hose, plumbing, jewelry	Ornamental metal works battery caps musical instruments, clock parts, pump lines	Automotive radiator cores and tanks, lamp fixtures, fasteners, springs, ammunition components	Grillwork, reflectors, lamp fixtures, fasteners, stencils, plumbing accessories, springs

<sup>a</sup>Where two values separated by a comma, the first is for wire. <sup>b</sup>Free cutting brass is 100.

## Copper and Its Alloys—Wrought

Type and CDA No. —	C28000 (Muntz Metal)	C31400 (Leaded Commercial Brass)	C33000, C33200 C33500 Leaded Brass	C34000 (Medium-Leaded Brass)	C34200 C35300 (High-Leaded Brass)	C35600 (Extra-High- Leaded Brass)
NOMINAL COMPOSITION, %	Cu 60.0, Zn 40.0	Cu 89.0, Pb 1.9, Zn 9.1	Cu 85-86, Zn 32.4-34.5, 0.5-1.6	Cu 85.0, Pb 1.0, Zn 34.0	Cu 84.5, Pb 2.0, Zn 33.0	Cu 82.0, Pb 2.5, Zn 35.5
<b>PHYSICAL PROPERTIES</b>						
Density (lb/in <sup>3</sup> )	0.303	0.319	0.308-0.308	0.306	0.306	0.307
Melting Temperature Range (°F)	1850-1860	1850-1900	1850-1720	1630-1700	1630-1670	1630-1660
Thermal Conductivity, 32°F (Btu·ft/(in <sup>2</sup> ·h·°F))	71	104	87	87	87	87
Coefficient of Thermal Expansion, 68-572°F (10 <sup>-6</sup> in./in./°F)	11.5	10.2	11.2-11.3	11.3	11.3	11.4
Specific Heat, 68-572°F (Btu/lb·°F)	0.09	0.09	0.09	0.09	0.09	0.09
Electrical Conductivity (%IACS)	28	42	26	25	26	26
<b>MECHANICAL PROPERTIES<sup>a</sup></b>						
Tension Modulus (10 <sup>6</sup> psi)	15	17	15	15	15	14
Tensile Strength (10 <sup>3</sup> psi)						
Annealed	54	37	51-52	47, 50	49	47
Half Hard	—	—	—	—	—	—
Hard	70 <sup>c</sup>	55 <sup>a</sup>	74-75	74	74	74
Spring	—	—	—	—	—	—
Yield Strength (10 <sup>3</sup> psi)						
Annealed	21	12	15-20	15	17	16
Half Hard	—	—	—	—	—	—
Hard	50 <sup>c</sup>	50 <sup>a</sup>	60	60	60	55
Spring	—	—	—	—	—	—
Elongation in 2 in. (%)						
Annealed	45	45	50-55	60	52	60
Half Hard	—	—	—	—	—	—
Hard	10 <sup>c</sup>	12 <sup>a</sup>	7-8	7	7	3-
Spring	—	—	—	—	—	—
Hardness (Rockwell)						
Annealed	F30	F55	F54-75	F54	F58	F52
Half Hard	—	—	—	—	—	—
Hard	97.5 <sup>c</sup>	96.1 <sup>a</sup>	380	380	380	381
Spring	—	—	—	—	—	—
Shear Strength (10 <sup>3</sup> psi)						
Annealed	40	24	34	34	34	—
Half Hard	—	—	—	—	—	—
Hard	44 <sup>c</sup>	31 <sup>a</sup>	43	43	43	—
<b>FABRICATING PROPERTIES</b>						
Cold Workability	Fair	Good	Fair-Exc	Good	Fair	Poor
Hot Workability	Excellent	Poor	Poor	Poor	Poor	Fair
Hot Working Temp (°F)	1150-1450	—	—	—	—	1300-1450
Annealing Temp (°F)	800-1100	800-1200	800-1300	800-1200	800-1100	800-1100
Machinability Index <sup>b</sup>	40	80	60-80	70	90	100
Joinability						
Soldering	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Brazing	Excellent	Good	Good	Good	Good	Good
Oxyacetylene Welding	Good	Not Rec	Not Rec-Fair	Not Rec	Not Rec	Not Rec
Butt Resistance Welding	Good	Fair	Fair	Fair	Fair	Fair
<b>CORROSION RESISTANCE</b>						
	Susceptible to dezincification and stress-corrosion cracking	Excellent resistance to pure hydrocarbons and freon; good resistance to industrial, marine and rural atmospheres; fair resistance to sea water, crude oils, and moist carbon dioxide; attacked by ammonium hydroxide and hydrochloric and sulfuric acids				
<b>AVAILABLE FORMS</b>						
	Strip, bar, sheet, plate, rod, tube	Bar, rod	Tube, bar, plate, strip	Strip, bar, plate, rod, wire	Strip, bar, plate, rod	Strip, bar, rod
<b>USES</b>						
	Architectural trim, large nuts and bolts, condenser plates, hot forgings, valve stems	Screws, screw machine parts, picking cranes	Pump and power cylinders and liners, munition primers, plug goods, screw machine parts	Butts, gears, nuts, rivets, screws, dials, engraving, instrument plates	Clock plates, nuts, backs, gears, wheels	

<sup>a</sup>Where two values separated by a comma appear, second is for wire. <sup>b</sup>Free-cutting brass is 100. <sup>c</sup>Half-hard. <sup>d</sup>Copper alloy C35300 is suitable for hot working and contains 59.0-64.3% Cu, 2.3% Pb, 0-10 Fe max and the remainder Zn.

## Copper and Its Alloys — Wrought

Type and CDA No.	C36000 (Free-Cutting Brass)	C36500, C36600 C36700, C36800 (Leaded Munz Metal)	C37000 (Free-Cutting Munz Metal)	C37700 (Forging Brass)	C38500 (Architectural Bronze)	C40500, C42200 C42500 (Tin Brass)
NOMINAL COMPOSITION, %	Cu 81.5, Pb 3.0, Zn 35.5	Cu 60.0, Pb 0.6, Zn 39.4	Cu 60.0, Zn 39.0, Pb 1.0	Cu 60.0, Zn 39.0, Pb 2.0	Cu 57.0, Zn 40.0, Pb 3.0	Cu 87-95, Zn 4-12, Sn 1-2
PHYSICAL PROPERTIES						
Density (lb./in. <sup>3</sup> )	0.307	0.304	0.304	0.305	0.306	0.317-0.319
Melting Temperature Range (°F)	1630-1650	1630-1650	1630-1650	1620-1640	1610-1630	1850-1940
Thermal Conductivity, 58°F (Btu-ft/hr-in. <sup>2</sup> -F)	67	71	69	69	71	99-35
Coefficient of Thermal Expansion, 58-572°F (10 <sup>-6</sup> in./in./F)	11.4	11.5	11.6	11.5	11.5	10.2
Specific Heat, 38-572°F (Btu/lb.-F)	0.09	0.09	0.09	0.09	0.09	0.09
Electrical Conductivity (%IACS)	25	28	27	27	28	28-41
MECHANICAL PROPERTIES <sup>a</sup>						
Tension Modulus (10 <sup>6</sup> psi)	14	15	15	15	14	16
Tensile Strength (10 <sup>3</sup> psi)						
Annealed	49	54	54	52	60	34-45
Half Hard	68	—	—	—	—	52-63
Hard	—	—	30	—	—	54-76
Spring	—	—	—	—	—	74-89
Yield Strength (10 <sup>3</sup> psi)						
Annealed	18	20	20	20	20	12-18
Half Hard	52	—	—	—	—	43-51
Hard	52	—	50	—	—	63-73
Spring	—	—	—	—	—	74-87
Elongation in 2 in. (%)						
Annealed	53	45	40	45	30	46-49
Half Hard	18	—	—	—	—	12-20
Hard	—	—	5	—	—	4-10
Spring	—	—	—	—	—	2-4
Hardness (Rockwell)						
Annealed	F68	F80	F80	F78	B65	F55-70
Half Hard	880	—	—	—	—	360-75
Hard	—	—	385	—	—	372-36
Spring	—	—	—	—	—	379-92
Shear Strength (10 <sup>3</sup> psi)						
Annealed	30	40	—	35	35	21
Half Hard	38	—	—	—	—	37
Hard	—	—	—	—	—	39
FABRICATING PROPERTIES						
Cold Workability	Poor	Fair	Fair	Poor	Poor	Excellent
Hot Workability	Fair	Excellent	Excellent	Excellent	Excellent	Good
Hot Working Temp (°F)	1300-1450	1150-1450	1150-1450	1200-1500	1150-1350	1455-1635
Annealing Temp (°F)	300-1100	800-1100	300-1100	300-1100	300-100	800-1100
Machinability Index <sup>b</sup>	100	60	70	30	90	20
Joinability						
Soldering	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Brazing	Good	Good	Good	Good	Good	Excellent
Oxyacetylene Welding	Not Rec	Fair	Not Rec	Not Rec	Not Rec	Good
Butt Resistance Welding	Fair	Fair	Fair	Fair	Fair	Good
CORROSION RESISTANCE						
	Excellent resistance to pure hydrocarbons, lacquers and freon; good resistance to industrial, marine and rural atmospheres, alcohols, fuel oils and dry carbon dioxide; fair resistance to sea water, crude oils, and most carbon dioxide; attacked by ammonium hydroxide and hydrochloric and sulfuric acids					
AVAILABLE FORMS						
	Bar, rod, shapes	Plate	Tube	Rod, shapes	Rod, shapes	Flat products
USES						
	Gears, pinions, high speed screw machine parts	Condenser tube plates	Automatic screw machine parts	Forgings and pressings of all kinds	Architectural extrusions, store fronts, trim, hinges, lock bodies, forgings	Electrical parts, terminals, connectors, springs, weatherstripping

<sup>a</sup>Where two values separated by a comma appear, second is for wire. <sup>b</sup>Free-cutting brass is 100. <sup>c</sup>When required, this alloy may be inhibited with As, Sb, or P in range of 0.02 to 0.10%. Inhibited alloys are denoted by Nos. C36600, C36700, and C36800.

## Copper and Its Alloys — Wrought

2

Type and CDA No.	C44300, C44400, C44500* (Admiralty)	C46400, C46500, C46600, C46700* (Naval Brass)	C48500 (Leaded Naval Brass)	C50500 (Phosphor Brass E)	C51000 (Phosphor Brass A)	C52100 (Phosphor Brass C)
NOMINAL COMPOSITION, %	Cu 71, Zn 28, Sn 1	Cu 60, Zn 23.7, Sn 0.75	Cu 60, Zn 37.5, Pb 1.75, Sn 0.70	Cu 98.7, Sn 1.3 P trace	Cu 94.3, Sn 5 P 0.02	Cu 92, Sn 8
PHYSICAL PROPERTIES						
Density (lb/in <sup>3</sup> )	0.308	0.304	0.305	0.321	0.320	0.318
Melting Temperature Range (°F)	1650-1720	1630-1650	1630-1650	1900-1970	1750-1920	1620-1880
Thermal Conductivity, 58°F (Btu/in/ft <sup>2</sup> /F)	54	67	67	120	40	36
Coefficient of Thermal Expansion, 58-572°F (10 <sup>-6</sup> in/in/°F)	11.2	11.8	11.8	9.9	9.9	10.1
Specific Heat, 58°F (Btu/lb-F)	0.09	0.09	0.09	0.09	0.09	0.09
Electrical Conductivity (%IACS)	25	26	26	48	15	13
MECHANICAL PROPERTIES <sup>a</sup>						
Tension Modulus (10 <sup>6</sup> psi)	16	15	15	17	16	16
Tensile Strength (10 <sup>3</sup> psi)						
Annealed	53.55	57	57	40, —	47.50	55.50
Half Hard	—	75	75	55, —	58.55	78, 105
Hard	—	88	—	55, 79	81, 110	93, 130
Spring	—	—	—	—	100, 140	112, —
Extra Spring	—	—	—	—	107, —	120, —
Yield Strength (10 <sup>3</sup> psi)						
Annealed	22	25	25	14	19, 20	24
Half Hard	—	53	53	—	55, 30	55
Hard	—	—	—	50	75	72
Elongation in 2 in. (%)						
Annealed	65, 60	47	40	48	64, 58	70, 55
Half Hard	—	20	15	16	28, 3	32
Hard	—	—	—	3	10	10
Spring	—	—	—	4	4	3
Extra Spring	—	—	—	—	3	2
Hardness (Rockwell)						
Annealed	F75	955	855	—	325	F75
Half Hard	—	982	882	954	378	384
Hard	—	—	—	975	387	392
Spring	—	—	—	979	395	398
Extra Spring	—	—	—	—	397	3100
FABRICATING PROPERTIES						
Cold Workability	Excellent	Fair	Poor	Excellent	Excellent	Good
Hot Workability	Fair	Excellent	Good	Good	Poor	Poor
Annealing Temp (°F)	900-1100	800-1100	900-1100	900-1200	900-1250	900-1250
Machinability Index <sup>b</sup>	30	30	70	20	20	20
Joining						
Soldering	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Brazing	Excellent	Excellent	Good	Excellent	Excellent	Excellent
Oxyacetylene Welding	Good	Good	Not Rec	Fair	Fair	Fair
Butt Resistance Welding	Good	Good	Fair	Excellent	Excellent	Excellent
CORROSION RESISTANCE	Good resistance to industrial, rural and marine atmospheres; petroleum products, alcohols, dry gases and sea water. Fairly good resistance to weak bases. Resistant to some weak bases and weak organic acids, but generally poor resistance to moist acids and strong bases. Poor resistance to solutions of cyanides and ammonium compounds. Resistant to dezincification.			Generally good resistance to atmosphere, water, salt water, and salt solutions. Some resistance to alkaline solutions and inorganic acids. Poor resistance to organic acids, cyanides, and ferric and ammonium compounds		
AVAILABLE FORMS	Plate, wire, tube	Strip, bar, plate, rod, tube stubs	Bar, rod, shapes	Strip, wire	Strip, rod, wire, tube	Strip, rod, wire
USES	Condenser, evaporator and heat exchanger tubes; condenser tube plates; distiller tubes	Fasteners, marine hardware, propeller shafts, valve stems, condenser plates	Marine hardware, screw machine products, valve stems	Electrical contacts, flexible hose, pole line hardware	Bridge bearing plates, chemical hardware, perforated sheets, textile mach., weld rods, heater bars, cotter pins, diaphragms, fuse clips, fasteners, washers, bushings, springs, switch parts truss wire	

<sup>a</sup>Where two values appear, second is for wire. <sup>b</sup>Free-cutting brass is 100. <sup>c</sup>This alloy is usually inhibited with either As, Sb or P in the range of 0.02 to 0.10%. Inhibited alloys are identified respectively C44300, C44400, C44500. <sup>d</sup>When required this alloy may be inhibited with either As, Sb or P in the range of 0.02 to 0.10%. Inhibited alloys are identified respectively by Nos. C46500, C46600, C46700.

## Copper and Its Alloys — Wrought

2

Type and CDA No.	C52400 (Phosphor Bronze D)	C54400 (Phosphor Bronze, Free- Cutting)	C51400 (Al Bronze D)	C63800 (Copper)	C64700 (Precip. Hard Si Bronze)	C65100 (Low Si Bronze B)	C65500 (High Si Bronze A)
NOMINAL COMPOSITION, %	Cu 90, Sn 10	Cu 88, Pb 4, Zn 4, Sn 4	Cu 91, Al 7, Fe 2	Cu 95.0, Al 2.8, Si 1.8, Co 0.4	Cu 97.5, Ni 1.9, Si 0.6	Cu 98.5, Si 1.5- 2.0, Mn 0.7 max	Cu 97, Si 3 Mn 1.5
PHYSICAL PROPERTIES							
Density (lb/in <sup>3</sup> )	0.317	0.321	0.285	0.299	0.322	0.316	0.308
Melting Temperature Range (°F)	1550-1820	1700-1830	1905-1915	1830-1885	1990	1890-1940	1780-1880
Thermal Conductivity, 58°F (Btu/ft·hr·in <sup>2</sup> ·°F)	29	50	39	23	102	33	21
Coefficient of Thermal Expansion, 58-572°F (10 <sup>-6</sup> in./in·°F)	10.2	9.6	9	9.5	9.8	9.8	10
Specific Heat, 58°F (Btu/lb·°F)	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Electrical Conductivity (%IACS)	11	19	14	10	38	12	7
MECHANICAL PROPERTIES <sup>1</sup>							
Tension Modulus (10 <sup>6</sup> psi)	16	15	17	16.7	21	17	15
Tensile Strength (10 <sup>3</sup> psi)							
Annealed	66-96	44	76	32	40	40	58-90
Half Hard	33, 118	58	—	106	—	30	79, 98
Hard	100, 147	—	85	120	105	70, 100	94, 125
Spring	122, —	—	—	125	—	—	110, 145
Extra Spring	128, —	—	—	130	—	—	—
Yield Strength (10 <sup>3</sup> psi)							
Annealed	23	19	—	54	14	15	21, 25
Half Hard	—	40	—	38	—	63	45, 57
Hard	—	63	60	101	99	55, 70	58, 95
Elongation in 2 in. (%)							
Annealed	58	30	45	36	30	50	50
Half Hard	32	24	—	15	—	15	17, 3
Hard	13	15	32	7	3	15	3, 5
Spring	4	—	—	4	—	—	43
Extra Spring	3	—	—	3	—	—	—
Hardness (Rockwell)							
Annealed	355	665	381	386	386	655	945-92
Half Hard	992	368	—	396	—	—	387
Hard	997	383	390	999	394	380	390-33
Spring	3101	—	—	3101	—	—	397
Extra Spring	3103	—	—	3101	—	—	—
FABRICATING PROPERTIES							
Cold Workability	Good	Good	Fair	Excellent	Excellent	Excellent	Excellent
Hot Workability	Poor	—	Good	Excellent	Excellent	Excellent	Excellent
Annealing Temp (°F)	900-1250	900-1250	1125-1650	750-1100	1300-1375	900-1250	900-1300
Machinability Index <sup>2</sup>	20	30	20	—	30	30	20
Joining							
Soldering	Excellent	Excellent	Not Rec	Fair	Excellent	Excellent	Good
Brazing	Excellent	Good	Fair	Fair	Excellent	Excellent	Excellent
Oxyacetylene Welding	Fair	Not Rec	Not Rec	Fair	Good	Good	Good
Butt Resistance Welding	Excellent	Fair	Good	Excellent	Good	—	Excellent
CORROSION RESISTANCE							
	Generally good resistance to atmosphere, water, salt water and salt solutions. Some resistance to alkaline solutions and inorganic acids. Poor resistance to organic acids, cyanides and ferric and ammonium compounds		Generally the same as C63900, C64700, C65100, C65500		Exc. res to marine, industrial, rural atmos, most fresh and sea waters; Exc oxid and sulfidation res at elevated temp. Res str cor		
	Exc res to marine, indust and rural atmos and most fresh and seawaters; hot and cold oil sulfuric, cold conc sulfuric, cold oil hydrochloric and most organic acids; hot and cold oil alkalis and cold conc alkalis; chlorides and sulfates of light metals. Attacked by oxidizing acids and ammonium hydroxide; poor res to chlorides and sulfates of heavy metals						
AVAILABLE FORMS							
	Strip, rod, wire	Strip, rod, shapes	Bar, sheet, pl. wire tube	Strip	Rod, wire, strip	Sheet, strip, plate, rod, wire, pipe, tube	
USES							
	Heavy bars and plates for compression, wear and corrosion; exp. plates	Bearings, bushings, gears, pinions, shafts, thrust washers, valve parts	Fasteners, tanks, machine parts, condenser tubes, marine sheathing	Springs, electrical components, glass sealing, fasteners, cutlery	Springs, sockets, fasteners, processing hardware	Cold headed screws, wire cable, connectors, pole line, marine parts valves	Weld, unfired hot water storage tanks, heat exchangers, hot headed fasteners, fittings

<sup>1</sup>Where two values appear, second is for wire unless otherwise noted. <sup>2</sup>Free-cutting brass = 100; <sup>3</sup>2% offset.

## Copper and Its Alloys — Wrought

Type and CDA No. —	C56700	C57500 (Manganese Bronze A)	C58700 (Aluminum Brass)	C58800	C70600, C71000, C71500 Copper-Nickel	C74500, C75200 C75400, C75700, C77000 Nickel-Silver
NOMINAL COMPOSITION, %	Cu 70 Zn 28.8 Mn 1.2	Cu 58.5, Zn 39, Fe 1.4, Sn 1, Mn 0.1	Cu 77.5, Zn 20.5, Al 2	Cu 73.5, Zn 22.7, Al 3.4, Co 0.4	Cu 99.5-99.8 Ni 10-30 Fe 0.5-1.3	Cu 55-65 Ni 10-18 Zn 17-27
PHYSICAL PROPERTIES						
Density (lb/in <sup>3</sup> )	0.308	0.302	0.301	0.296	0.323	0.314-0.316
Melting Temperature Range (°F)	1920-2000	1590-1630	1710-1780	1740-1765	2010-2260	1870-2030
Thermal Conductivity, 68°F (Btu·in/hr·in <sup>2</sup> ·F)	56	61	58	23	17-26	17-26
Coefficient of Thermal Expansion, 68-572°F (10 <sup>-6</sup> in/in·F)	11.1	11.8	10.3	10.1	8.55-9.35	9-9.3
Specific Heat (Btu/lb·F)	0.09	0.09	0.09	—	0.09	0.09
Electrical Conductivity (%IACS)	17	24	23	18	4.6-9	5.3-9
MECHANICAL PROPERTIES						
Tension Modulus (10 <sup>6</sup> psi)	16	15	16	16.8	18-24.3	17.5-18
Tensile Strength (10 <sup>4</sup> psi)						
Annealed	49	55	60	82	44-62	49-60
Half Hard	54	34	—	93	58-75	73-86
Hard	77	—	—	109	75	85-105
Spring	96	—	—	122	82	115-145
Yield Strength (10 <sup>4</sup> psi)						
Annealed	18	30	27	55 <sup>a</sup>	16-40	18-27
Half Hard	48	30	—	75 <sup>a</sup>	62-70	60-35
Hard	62	—	—	97 <sup>a</sup>	71	74-90
Elongation in 2 in. (%)						
Annealed	58	33	55	38	35-46.5	40-50
Half Hard	20	19	—	20	8-15	11-7
Hard	10	—	—	5	3	3-5
Spring	2.5	—	—	2	3	2.5-1
Hardness (Rockwell)						
Annealed	F70	96S	F77	881	915-92	922-55
Half Hard	370	890	—	890	875-30	880-33
Hard	384	—	—	896	872-35	887-31
Spring	391	—	—	398	384	899
FABRICATING PROPERTIES						
Cold Workability	Excellent	Poor	Excellent	Excellent	Good	Good-Exc
Hot Workability	Good	Excellent	Fair	Excellent	Good	Poor
Annealing Temp (°F)	930-1300	800-1100	800-1100	750-1100	1100-1500	1100-1500
Machinability Index <sup>a</sup>	30	30	30	—	20	20-30
Joining						
Soldering	Excellent	Excellent	Fair	Fair	Excellent	Excellent
Brazing	Excellent	Excellent	Good	Fair	Excellent	Excellent
Oxyacetylene Welding	Good	Good	Fair	—	Fair	Good
Butt Resistance Welding	Excellent	Good	Good	Good	Excellent	Good
CORROSION RESISTANCE	Good resistance to marine and industrial atmos, but subject to stress corrosion	Good resistance to industrial, rural, marine atmos; petroleum products; alcohols; dry gases and seawater	Exc res to marine, indus., rural atmos and fresh water. Good h/term oxide res. More res to stress corr than other brasses	Res to attack by high velocity sea water, fresh water, steam, sulfuric, phosphoric and mild organic and chlorides, sulfates, nitrates	Rapidly attacked by oxidizing acids. Res to NaOH, KOH but attacked by ammonium hydroxide and moist ammonia. Good res to marine, rural atm, sub to stress corr	
AVAILABLE FORMS	Strip, sheet, wire	Rod	Tube	Strip	Plate, rod, strip, wire tubing	Strip, bar, rod, wire
USES	Resistance weldable products	Clutch disks, pump rods, shafts, balls; valve stems and bodies	Condenser, evaporator, heat exchanger and distiller tubes	Springs, electrical and electronic parts, holloware	Condenser tubes, heat exchangers process equip	Hardware, fasteners, holloware, optical parts, surgical and dental instruments

<sup>a</sup>Free cutting brass is 100, <sup>b</sup>0.2%, <sup>c</sup>Light drawn.

## Copper and Copper Alloys—Cast

CDA Alloy No. —	C80100, C80300, C80500, C80700, C80900, C81100	C81400, C81500	C82000	C82200	C82400
COMPOSITION, %	Cu + Ag 99.70 to 99.95 min	Cu 98.00-98.50 min, Cr 0.8-1.0 (Be 0.06-0.14 only)	Cu 96.3, Co ( + Ni ) 2.5, Be 0.6	Cu 96.50 min, Ni 1.5, Be 0.6	Cu 97.20 min, Be 1.70, Co 0.30
PHYSICAL PROPERTIES					
Density (lb/in <sup>3</sup> )	0.323	0.318-0.319	0.311	0.316	0.298
Melting Temperature Range (°F)	1948-1981	1950-2000	1780-1990	1900-2040	1650-1825
Thermal Conductivity, 68°F (Btu·ft/lb·in <sup>2</sup> ·F)	200-226	150-182	150	106	77
Coefficient of Thermal Expansion, 68-572°F (10 <sup>-6</sup> in/in·F)	9.4	9.5-10	9.9	9	9.4 <sup>a</sup>
Specific Heat, 68-572°F (Btu/lb·F)	0.09-0.092	0.09-0.093	0.1	0.1	0.1
Electrical Conductivity (%IACS)	92-100	80-12	45	45	25
MECHANICAL PROPERTIES <sup>a</sup>					
Tension Modulus (10 <sup>3</sup> psi)	17	16-18.5	17	16.3	18.5
Tensile Strength (10 <sup>3</sup> psi)	25	51-53 HT	50 ASC, 100 HT	57 ASC, 35 HT	72 ASC, 150 HT
Yield Strength (10 <sup>3</sup> psi)	9	10 HT	20 ASC, 75 HT	30 ASC, 75 HT	37 ASC, 140 HT
Elongation in 2 in. (%)	40	11-17 HT	20 ASC, 3 HT	20 ASC, 3 HT	20 ASC, 1 HT
Hardness (Brinell, 500kg)	44	88R <sub>9</sub> HT <sup>b</sup> , 105 HT <sup>c</sup>	55R <sub>9</sub> ASC, 35R <sub>9</sub> HT	60R <sub>9</sub> ASC, 26R <sub>9</sub> HT	78R <sub>9</sub> ASC, 38R <sub>9</sub> HT
Fatigue Strength (10 <sup>3</sup> psi)	9	15 <sup>d</sup>	—	—	—
Impact Strength (ft-lb)	—	—	—	—	—
Izod	—	30 HT <sup>e</sup>	—	—	—
Charpy V-notch	—	20 HT <sup>e</sup>	—	—	—
Creep Strength, 0.1% in 10,000 hours (10 <sup>3</sup> psi)	—	—	—	—	—
350°F	—	—	—	—	—
450°F	—	—	—	—	—
550°F	—	—	—	—	—
FABRICATION CHARACTERISTICS					
Casting Characteristics					
Effect of Section Size on Soundness and Mechanical Properties	Small	Small	Small	Small	Medium
Patternmakers Shrinkage	1/4	1/4	3/16	3/16	3/16
Drossing	None	High	Low	Low	Low
Gassing	High	Medium to High	Medium	Medium	Medium
Fluidity	Medium	Medium	Medium	Medium	High
Shrinkage	High	High	Medium	Medium	Medium
Casting Yield	Low	Low	Low	Low	Medium
Thermal Treatments					
Stress Relief Temp (°F)	—	500 <sup>f</sup>	500	500	400
Sol Heat Treat Temp (°F)	—	1830-1850	1650-1700	1650-1750	1450-1500
Aging Temp (°F)	—	900	900	835-850	550
Machinability Index <sup>g</sup>	10	20	20	20	20
Joining					
Soldering	Excellent	Good to Exc	Good	Good	Fair
Brazing	Excellent	Good	Good	Good	Fair
Oxyacetylene Welding	Not Rec	Not Rec	Not Rec	Not Rec	Not Rec
Carbon Arc Welding	Fair	Fair	Fair	Fair	Fair
Gas Shielded Arc Welding	Fair	Fair	Fair	Fair	Fair
Coated Metal Arc Welding	Not Rec	Fair, Not Rec <sup>h</sup>	Fair	Fair	Fair
AVAILABLE FORMS	Centrifugal, continuous, investment, permanent mold, plaster and sand castings	Centrifugal, continuous, investment, permanent mold, plaster and sand castings	Centrifugal, continuous, investment, permanent mold, plaster, sand and pressure castings	Centrifugal, continuous, investment, permanent mold, plaster and sand casting	Centrifugal, investment, permanent mold, plaster, sand and pressure castings
USES	Electrical and thermal conductors; corrosion and oxidation resistant applications	Electrical and thermal conductors requiring higher strength and hardness than coppers	Contact and switch blades, bearings, soldering iron and resistance welding tips	Clutch rings, brake drums, seam welder electrodes, projection welding dies, spot welding tips, beam welder shapes.	Safety tools, moils for plastic parts, cams, bushings, bearings, valves, gears, pump parts

<sup>a</sup> Volume cases in as-cast condition except for precipitation hardening alloys which are in fully heat treated condition. <sup>b</sup> ASC = as sand cast; HT = heat treated. <sup>c</sup> Based on 100 for free cutting brass. <sup>d</sup> For 3.5% extension under load. <sup>e</sup> Alloy C81400. <sup>f</sup> Alloy C81500. <sup>g</sup> For 68-392°F. <sup>h</sup> Minimum.

## Copper Alloys—Cast

C82500	C82600	C82800	C83600	C84400, C85200	C86200, C86300	C87400
Cu 97.2, Be 2.0, Co (+ Ni) 0.5, Si 0.25	Cu 95.2 min, Be 2.3, Co 0.5, Si 0.25	Cu 96.5, Be 2.6, Co (+ Ni) 0.5, Si 0.25	Cu 85, Zn 5, Sn 5, Pb 5	Cu 72-81, Zn 9-24, Pb 3-7, Sn 1-3	Cu 83-84, Zn 25-26, Al 4-6, Fe 3, Mn 3	Cu 83, Zn 14, Si 3
0.292 1575-1800 75 9.4 0.1 18	0.292 1575-1750 73 9.4 0.1 20	0.292 1625-1710 71 9.4 0.1 20	0.318 1570-1850 41.6 10 <sup>a</sup> 0.09 15	0.307-0.314 1549-1940 41.9-48.5 10-11.5 <sup>a</sup> 0.09 16.4-18	0.283-0.298 1625-1725 20.5 12 0.09 7.5-8.0	0.3 1510-1680 16 10.9 0.09 6.7
18.5 80 ASC, 160 HT	19 33 ASC, 165 HT	19.3 97 ASC, 165 HT	13.5 37 ASC	11-13 34-38 ASC	14.2-15 95-119 ASC	15.4 55 ASC
45 ASC, 155 <sup>a</sup> HT 20 ASC, 1 HT 82 R <sub>4</sub> ASC, 30 R <sub>2</sub> HT	47 ASC, 155 HT 20 ASC, 1 HT 82 R <sub>4</sub> ASC, 43 R <sub>2</sub> HT	55 ASC, 145 HT 20 ASC, 1 HT 35 R <sub>4</sub> ASC, 45 R <sub>2</sub> HT	17 ASC <sup>c</sup> 30 ASC 35-60 ASC 11 ASC	13-15 ASC <sup>c</sup> 30 ASC 26-35 ASC 45-55 ASC	48-83 ASC 18-20 ASC 180-225 ASC <sup>c</sup> 25 ASC	24 ASC <sup>c</sup> 30 ASC 70 ASC —
—	—	5 HT —	9 ASC 11 ASC	8 ASC —	12-15 ASC 12 ASC	— 40 ASC
—	—	—	12.5 ASC 11.1 ASC 7.0 ASC	—	19 0.5 ASC —	— — —
Medium 3/16 Medium Medium High Medium Medium	Medium 3/16 Medium Medium High Medium Medium	Medium 3/16 Medium Medium High Medium Medium	Large 3/16 Low Medium Medium Medium High	Small to Large 3/16 Medium to High Low to Medium Low to Medium Medium High	Small 1-4 High Low Medium High Low	Medium 3/16 Low Medium High Medium Medium
400 1450-1475 650 20	400 1450-1475 650 20	400 1450-1500 650 10	500 — — 84	500 — — 80-90	500 — — 8-30	500 — — 50
Fair Fair Not Rec Fair Fair Fair	Fair Fair Not Rec Fair Fair Fair	Fair Fair Not Rec Fair Fair Fair	Excellent Good <sup>d</sup> Not Rec Not Rec Not Rec Fair	Excellent Fair to Good <sup>d</sup> Not Rec to Fair Not Rec Not Rec Not Rec to Fair	Poor Poor Poor-Good Not Rec-Poor Poor-Fair Good	Not Rec Fair Fair Not Rec Fair Not Rec
Centrifugal, investment, permanent mold, plaster and pressure castings	Centrifugal, investment, permanent mold, plaster, sand and pressure castings	Centrifugal, investment, permanent mold, plaster, sand and pressure castings	Sand, centrifugal, continuous, investment castings	Centrifugal, continuous, die, investment, plaster and sand castings	Centrifugal, continuous, die, investment, plaster and sand castings	Centrifugal, die, investment, permanent mold, plaster and sand castings
Safety tools, molds for plastic parts, cams, bushings, bearings, valves, pump parts	Bearings, molds for plastic parts	Molds for plastic parts, cams, bushings, bearings, valves, pump parts, sleeves	Valves, flanges, pipe fittings, plumbing goods, water pump impellers	Hardware, plumbing supplies, low pressure valves and fittings, ornamental castings	Manne parts, large valve stems, cams, bearings, hyd. cyl. parts, bushings	Bearings, gears, impellers, rocker arms, valve stems, clamps

<sup>a</sup> Volume basis in as-cast condition except for precipitation hardening alloys which are in fully heat treated condition. <sup>b</sup> ASC = as sand cast; HT = heat treated. <sup>c</sup> Based on 100 for free machining brass. <sup>d</sup> For 68 to 400 F. <sup>e</sup> For 0.5% extension under load. <sup>f</sup> Since brazing is done within the not short range of alloys C83600 and C84400, strain must be avoided during brazing and cooling. <sup>g</sup> For 58 to 212° for alloy C85200. <sup>h</sup> 3000 kg load.



## Copper Alloys—Cast

CDA Alloy No. —	C90300, C90500, C91600	C92200, C92300	C93200	C93700	C94700
COMPOSITION, %	Cu 88, Sn 8-10 Zn 2-5, Ni 1-1.5	Cu 87-88, Sn 6-8, Zn 4-4.5, Pb 1.5 C92200 only, Ni 1.0	Cu 83, Pb 7, Sn 7, Zn 3	Cu 80, Sn 10, Pb 10	Cu 88, Sn 5, Ni 5, Zn 2
<b>PHYSICAL PROPERTIES</b>					
Density (lb/in <sup>3</sup> )	0.315-0.32	0.312-0.317	0.322	0.32	0.32
Melting Temperature Range (°F)	1570-1887	1518-1830	1570-1790	1403-1705	1660-1880
Thermal Conductivity, 58°F (Btu-ft/hr-in <sup>2</sup> -°F)	40.8-43.2	40.2-43.2	33.6	27.1	31.2
Coefficient of Thermal Expansion, 68-572°F (10 <sup>-6</sup> in/in-°F)	—	—	—	—	—
Specific Heat, 68-572°F (Btu/lb-°F)	0.09	0.09	0.09	0.09	0.09
Electrical Conductivity (%IACS)	10-12	12-14.3	12	10	12
<b>MECHANICAL PROPERTIES*</b>					
Tension Modulus (10 <sup>6</sup> psi)	14-16	14	14.5	11	15
Tensile Strength (10 <sup>3</sup> psi)	44-45 ASC	40 ASC	35 ASC	35 ASC	50 ASC, 35 HT
Yield Strength (10 <sup>3</sup> psi)	21-22 ASC	20 ASC	18 ASC	18 ASC	23 ASC, 30 HT
Elongation in 2 in. (%)	16-30 ASC	25-30 ASC	20 ASC	20 ASC	35 ASC, 10 HT
Hardness (Brinell, 500kg)	70-85 ASC	55-70 ASC	55 ASC	50 ASC	85 ASC
Compressive Strength (10 <sup>3</sup> psi)	—	—	—	—	—
0.001 in. set/in	13 ASC <sup>2</sup>	—	—	13 ASC	—
0.01 in. set/in	40 ASC <sup>2</sup>	—	—	—	—
0.1 in. set/in	—	35-38 ASC	46 ASC	47 ASC	—
Fatigue Strength (10 <sup>3</sup> psi)	13 ASC <sup>2</sup>	11 ASC <sup>2</sup>	16 ASC	13 ASC	14 ASC, 14 HT
Impact Strength (ft-lb)	—	—	—	—	—
Izod	10 ASC <sup>2</sup>	12 ASC <sup>2</sup>	6 ASC	5 ASC	35 ASC, 110 HT
Charpy V-notch	14 ASC <sup>2</sup>	19 ASC <sup>2</sup>	—	11 ASC	—
Creep Strength, 0.1% in 10,000 hours (10 <sup>3</sup> psi)	—	—	—	—	—
350°F	—	16 ASC <sup>2</sup>	—	10.4 ASC	—
450°F	—	11.2 ASC <sup>2</sup>	—	7.4 ASC	—
550°F	—	6.2 ASC <sup>2</sup>	—	1.8 ASC	—
<b>FABRICATION CHARACTERISTICS</b>					
<b>Casting Characteristics</b>					
Effect of Section Size on Soundness and Mechanical Properties	Large	Large	Medium	Small-Med	Medium
Patternmakers Shrinkage	3/16	3/16	7/32	1/8	3/16
Drossing	Low	Low	Low	Low	Low
Gassing	Medium	Medium	Medium	Medium	Medium
Fluidity	Med to High	Medium	Medium	High	Medium
Shrinkage	Low to Medium	Low	Low	Low	Medium
Casting Yield	Medium	Medium	High	High	Medium
<b>Thermal Treatments</b>					
Stress Relief Temp (°F)	500	500	500	500	500
Sol Heat Treat Temp (°F)	—	—	—	—	1450
Aging Temp (°F)	—	—	—	—	500
Machinability index <sup>2</sup>	20-20	42	70	80	30 ASC, 20 HT
<b>Joining</b>					
Soldering	Excellent	Excellent	Excellent	Good	Excellent
Brazing	Good <sup>3</sup>	Good to Exec <sup>4</sup>	Good <sup>5</sup>	Good <sup>6</sup>	Excellent <sup>7</sup>
Oxyacetylene Welding	Fair	Not Rec	Not Rec	Not Rec	Fair
Carbon Arc Welding	Fair	Not Rec	Not Rec	Not Rec	Not Rec
Gas Shielded Arc Welding	Fair	Not Rec	Not Rec	Not Rec	Good
Coated Metal Arc Welding	Fair	Not Rec	Not Rec	Not Rec	Good
<b>AVAILABLE FORMS</b>					
	Centrifugal continuous, investment, permanent mold, plaster and sand castings	Centrifugal continuous, investment, permanent mold, plaster and sand castings	Centrifugal, continuous, permanent mold and sand castings		Centrifugal, continuous, investment, permanent mold and sand castings
<b>USES</b>					
	Gears, bearings, bushings, impellers, steam fittings, seal rings, valve components	Valves, pipe fittings, high pressure steam castings	General utility bearings and bushings	Bearings for high speed and pressures, pumps, impellers, pressure tight castings	Valve stems and bodies, bearings, wear guides, shift forks, feeding mechanisms, circuit breaker parts, gears, piston cylinders, nozzles

\*Annealed or as-cast condition except for precipitation hardening alloys which are in fully heat treated condition. <sup>2</sup>ASC = as sand cast; HT = heat treated. <sup>3</sup>Based on 100' for free cutting brass. <sup>4</sup>Only Alloy C90300. <sup>5</sup>Only Alloy C90500. Since brazing is done within alloy's not short range, strain must be avoided during brazing and cooling. <sup>6</sup>Only alloy C92200. <sup>7</sup>Only alloy C92300. 58 to 212 F. 58 to 392 F.

## Copper Alloys — Cast

2

CDA Alloy No. —	C94800	C95200, C95300 C95400, C95500	C96200 C96400	C97300, C97400 C97600, C97800	C99300
COMPOSITION, %	Cu 87, Sn 5, Ni 5, Zn 2.5 max	Cu 81-88, Al 9-11, Fe 1-4, Ni 4 (C95500 only)	Cu 89.1-88.6, Ni 10-30, Mn 1.5 max, Fe 0.9-1.4	Cu 55-66, Sn 2-5 Pb 2-10, Ni 12-25 Fe 1.5 max, Mn 0.5-1.0, Zn bal	Cu 71.8, Ni 15 Al 11, Co 1.5 Fe 0.7
<b>PHYSICAL PROPERTIES</b>					
Density (lb/in <sup>3</sup> )	0.32	0.269-0.278	0.323	0.32-0.321	0.275
Melting Temperature Range (°F)	1660-1880	1880-1930	2010-2250	1850-2158	1955-1970
Thermal Conductivity, 38°F (Btu/ft·hr·in <sup>2</sup> ·F)	22.3	24.2-38.3	17-26	13-16.5	25
Coefficient of Thermal Expansion, 68-572°F (10 <sup>-6</sup> in/in·F)	11	9	9-9.5	9-9.7 <sup>a</sup>	9.2 <sup>a</sup>
Specific Heat, 58-572°F (Btu/lb·F)	0.09	0.09-0.1	0.09	0.09	0.1
Electrical Conductivity (%IACS)	12	8.5-13	5-11	4.5-5.7	9
<b>MECHANICAL PROPERTIES<sup>b</sup></b>					
Tension Modulus (10 <sup>3</sup> psi)	15	15-18	18-21	16-19	18
Tensile Strength (10 <sup>3</sup> psi)	50 ASC, 80 HT	75-100 ASC	49-68 ASC	35-55 ASC	95 ASC
Yield Strength (10 <sup>3</sup> psi)	23 ASC, 30 HT	27-44 ASC, 42-68 HT	29-37 ASC	17-30 ASC	55 ASC
Elongation in 2 in. (%)	35 ASC, 8 HT	12-35 ASC, 8-15 HT	29-28 ASC	16-20 ASC	2 ASC
Hardness (Brinell, 500kg)	80 ASC, 120 HT	125-195 ASC <sup>m</sup>	140 ASC <sup>m</sup>	55-80 ASC	200 ASC <sup>m</sup>
Compressive Strength (10 <sup>3</sup> psi)	—	20-27 ACS	—	—	—
0.001 in. set/in.	—	—	—	30 ASC	—
0.01 in. set/in.	—	—	—	57 ASC	—
0.1 in. set/in.	—	70-120 ASC	37 ASC	—	—
Fatigue Strength (10 <sup>3</sup> psi)	12 ASC, 12 HT	22 ASC	13-18 ASC	15.5 ASC	—
Impact Strength (ft-lb)	—	—	—	—	—
Izod	—	35 ASC <sup>c</sup>	—	—	—
Charpy V-notch	—	30 ASC <sup>c</sup>	78-100 ASC	11	4
Creep Strength, 0.1% in 10,000 hours (10 <sup>3</sup> psi)	—	7.4-10.5 ASC <sup>c</sup>	—	—	—
350°F	—	4.4-5.5 ASC <sup>c</sup>	—	32.5	—
450°F	—	2.4-2.9 ASC <sup>c</sup>	—	22.2	—
550°F	—	—	—	—	—
<b>FABRICATION CHARACTERISTICS</b>					
<b>Casting Characteristics</b>					
Effect of Section Size on Soundness and Mechanical Properties	Medium	Small	Small	Medium	Small
Patternmakers Shrinkage	3/16	3/16-1/4	3/16-7/32	1/8-3/16	3/16
Drossing	Low	High	Low to Medium	Medium to High	High
Gassing	Medium	Medium	High	Medium to High	Medium
Fluidity	Medium	Medium	High	High	Medium
Shrinkage	Medium	High	High	Medium	High
Casting Yield	Medium	Low	Low	Medium	Low
<b>Thermal Treatments</b>					
Stress Relief Temp (°F)	500	600	—	500	950
Sol Heat Treat Temp (°F)	—	1610-1650	—	—	—
Aging Temp (°F)	600	1200	—	—	—
Machinability Index <sup>d</sup>	50 ASC, 40 HT	50-60	10-20	60-70	20
<b>Joining</b>					
Soldering	Excellent	Good	Excellent	Excellent	Not Rec
Brazing	Good <sup>e</sup>	Fair To Good	Excellent	Excellent	Good
Oxyacetylene Welding	Not Rec	Not Rec	Not Rec	Not Rec	Not Rec
Carbon Arc Welding	Not Rec	Fair	Not Rec	Not Rec	Poor
Gas Shielded Arc Welding	Not Rec	Good to Exc	Fair to Good <sup>f</sup>	Not Rec	Good
Coated Metal Arc Welding	Not Rec	Good	Good <sup>f</sup>	Not Rec	Good
<b>AVAILABLE FORMS</b>					
	Permanent mold and sand castings	Centrifugal, continuous, investment, permanent mold, plaster and sand castings	Centrifugal, sand, continuous castings	Sand, investment, centrifugal and permanent mold castings	Continuous and sand castings
<b>USES</b>					
	Structural parts, gear components, motion transmission devices, machinery parts, bearings	Acid res pumps, pecking baskets, gears, marine equipment, valve guides and seats, pump rods	Sea water resistant components	Hardware fittings, marine parts, valves, valve seats, ornamental castings	Glass making molds, plate glass rolls, marine hardware

<sup>a</sup> Volume basis in as-cast condition except for precipitation hardening alloys which are in fully heat treated condition. <sup>b</sup> ASC = as sand cast; HT = heat treated. <sup>c</sup> Based on 100 for free cutting brass. <sup>d</sup> Brazing is done within alloy's hot short range; strain must be avoided during brazing and cooling. <sup>e</sup> Only alloy C95200. <sup>f</sup> 500 F. <sup>g</sup> 700 F. <sup>h</sup> 800 F. <sup>i</sup> Minimum. <sup>j</sup> Filler metal R Cu Ni or E Cu Ni. <sup>k</sup> For 58-500 F. <sup>l</sup> For 58-1020 F. <sup>m</sup> For 3000 kg load.



# STRIPS



*Al Shaheed Brass... A history of tradition, dedicated to excellence*

To keep Al Shaheed Brass in the forefront of the brass industry, a highly diversified team of experts works on blending cutting-edge engineering with a technology-driven factory of the future to produce the highest-quality strip products. Precision rolling mills, backed by the latest in Statistical Process Control (SPC) systems, are utilized to produce a complete line of brass and copper products. Al Shaheed Brass produces the highest-quality strip in various gauges, widths and tempers according to each customer's specifications.

## Alloys Designation انواع السبائك

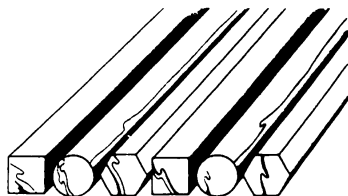
Ser.	Alloy	Specification	Chemical Composition		
			Cu	Zn	Other Elements
1.	Si-Cu	DIN 1787	99.90	---	P= 0.015-0.040
2.	Cu Zn 10	DIN 17660	89.0-91.0	Rest	0.43 Max.
3.	Cu Zn 28		71.0-73.0		
4.	Cu Zn 30		69.0-71.0		
5.	Cu Zn 33		66.0-68.5		
6.	Cu Zn 37		62.0-65.0		0.74 Max.
7.	Cu Zn 40		59.0-61.5		1.26 Max.

## Dimensions and Physical Properties الأبعاد والمواصفات الفيزيائية

Ser.	Shape of Product	Physical Properties	Dimensions (mm)		
			Thickness	Width	Length/Coil ID
1.	Sheets	DIN 17670	1-4	65-650	1000-3000
2.	Slabs		10-24 Cold Rolled 24-38 Hot Rolled 38-100 Cold Rolled	650-670	1000-4000
3.	Strips In Coil		1-4 Cold Rolled	65-650	400 ID
4.	Thin Strips In Coils		0.07-2.5 For Cu 0.1-2.5 For Br	10-325	0.07-0.25 100 ID 0.25-1.30 200 ID 0.56-2.50 400 ID



## RODS



*Al Shaheed Brass... A history of tradition, dedicated to excellence*

Al Shaheed Brass offers brass and copper rod in straight lengths and a variety of alloys and sizes to meet each of its customer's requirements. Efficient production methods and an uncompromising knowledge and expertise permit Al Shaheed Brass to be very competitive in a world marketplace in terms of this commodity.

### Alloys Designation انواع السبائك

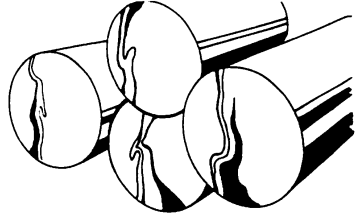
Ser.	Alloy	Specification	Chemical Composition			
			Cu	Zn	Pb	Other Elements
1.	Si-Cu	DIN 1787	99.90	---	---	P= 0.015-0.040
2.	Cu Zn 30	DIN 17660	69.0-71.0	Rest	---	0.43 Max.
3.	Cu Zn 37		62.0-64.0		---	0.74 Max.
4.	Cu Zn 39 Pb2		58.5-59.8		1.5-2.5	1.0 Max.
5.	Cu Zn 3 Pb3		57.0-59.0		2.5-3.5	1.0 Max.
6.	CDA 360	ASTM B-16	60.0-63.0		2.5-3.7	Fe 0.35 Max. Rest 0.50 Max.

### Dimensions and Physical Properties الأبعاد والمواصفات الفيزيائية

Ser.	Shape of Product	Physical Properties	Diameter (mm)
1.	Round Rod	DIN  17672	Drawn 8-32mm acc 1756 Extruded 14-125mm acc 1782
2.	Hexagonal Rod		Drawn 10-46mm acc 1763 Extruded 14-48mm acc 1782
Packing: - bundles and cases about 500kg each (sizes up to 10mm in cases, over 10mm in bundles)			Length: - sizes 8-32mm - 2-3.7 meters +/-1 inch - sizes 33-48mm - 2-3 meters +/-1 inch - sizes over 48mm 1-2 meters



## BILLETS



*Al Shaheed Brass... A history of tradition, dedicated to excellence*

BILLETS are produced at the Al Shaheed Brass state-of-the-art facility. The billet product line conforms to the highest standards of surface quality and internal soundness. Specially instrumented equipment permits maximum control of chemistry. This type of high-quality casting will maximize your rod and tube mill yields.

### Alloys Designation انواع السبائك

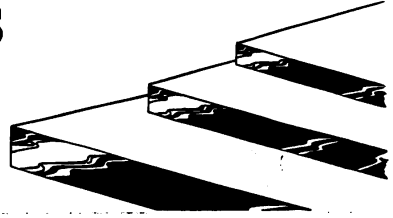
Ser.	Alloy	Specification	Chemical Composition			
			Cu	Zn	Pb	Other Elements
1.	Sf-Cu	DIN 1787	99.90	---	---	P= 0.015-0.040
2.	Cu Zn 30	DIN 17660	69.0-71.0	Rest	---	0.43 Max.
3.	Cu Zn 37		62.0-64.0			0.74 Max.
4.	Cu Zn 39 Pb2		58.5-59.8			1.0 Max.
5.	Cu Zn 39 Pb3		57.0-59.0			1.0 Max.
6.	CDA 360	ASTM B-16	60.0-63.0		2.5-3.7	Fe 0.35 Max. Rest 0.50 Max.

### Dimensions and Physical Properties الأبعاد والخواص الفيزيائية

Ser.	Shape of Product	Physical Properties	Dimensions (mm)			
			Diameter		Length	
				Tolerance		Tolerance
1.	Billets	As Cast	155	+2 / -5	300-400	+8 / -0
			180	+3 / -8	401-4000	+12 / -0
			210	+4 / -10		



## CAKES



*Al Shaheed Brass... A history of tradition, dedicated to excellence*

High-quality brass and copper cakes are produced at the Al Shaheed Brass facility utilizing a variety of specialized state-of-the-art equipment. This product line conforms to the highest standards of surface quality and internal soundness. Sophisticated laboratory equipment permits maximum control of chemistry. This type of high-quality casting will maximize your sheet mill yields.

### Alloys Designation انواع السبائك

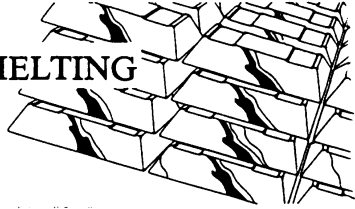
Ser.	Alloy	Specification	Chemical Composition		
			Cu	Zn	Other Elements
1.	Cu Zn 28	DIN 17660	71.0-73.0	Rest	0.43 Max.
2.	Cu Zn 30		69.0-71.0		
3.	Cu Zn 33		66.0-68.0		
4.	Cu Zn 37		62.0-64.0		0.74 Max.
5.	Cu Zn 40		59.5-61.5		1.26 Max.

### Dimensions and Physical Properties الأبعاد والمواصفات الفيزيائية

Ser.	Physical Properties	Shape of Product	Dimensions (mm)		
			Thickness	Width	Length
1.	Cakes	As Cast	145	670	3000-6000



## INGOTS RAW MATERIALS for MELTING



*Al Shaheed Brass... A history of tradition, dedicated to excellence*

The Al Shaheed Refinery generates brass ingots of various copper content to meet each customer's raw material needs. The state-of-the-art Al Shaheed Brass Refinery utilizes a process to produce raw material without impurities or contamination. Al Shaheed's ingots are backed by certified analysis to assure the product is of the highest quality. Ingots are cast according to each individual customer's material specifications.

### BRASS INGOTS

#### Alloys Designation    انواع السبائك

##### Alloy Specifications -

Per DIN, ASTM, BS, SIS standards or according to customer requirements

##### Impurities -

Will be within the above specified standards

#### Dimensions and Physical Properties    الأبعاد والخواص الفيزيائية

##### Size -

(mm) 290 x 130 x 80

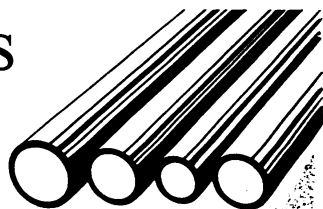
##### Weight -

25 kg

Suitable for casting in Brass Strip, Rod or Tube



## PIPES/TUBES



*Al Shaheed Brass... A history of tradition, dedicated to excellence*

The Al Shaheed Brass engineers and support personnel are carrying out their commitment to the future -- by producing products of the highest quality standards. This comprehensive, fully equipped facility produces pipes and tubes in straight lengths, which are available in a variety of alloys and sizes.

### Alloys Designation      انواع السبائك

Ser.	Alloy	Specification	Chemical Composition			
			Cu	Zn	Ni	Other Elements
1.	Sf-Cu	DIN 1787	99.90	---	---	P= 0.015-0.040
2.	Cu Ni 5	DIN 17664	Rest	---	4.0-6.0	0.1 Max.
3.	Cu Zn 30	DIN 17660	69.0-71.0	Rest	---	0.43 Max.
4.	Cu Zn 37		62.0-64.0			0.74 Max.

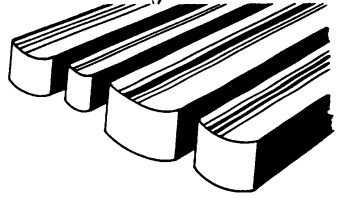
### Dimensions and Physical Properties      الأبعاد والمواصفات الفيزيائية

Ser.	Shape of Product	Physical Properties	Dimensions (mm)	
			Outside Diameter	Thickness
1.	Pipes and Tubes	DIN 17671	20-185	2-20





## PROFILES



*Al Shaheed Brass... A history of tradition, dedicated to excellence*

A full complement of special shapes are available from the Al Shaheed Brass facility to meet the specialized needs of each customer. Precision machinery capable of meeting the most intricate and exacting designs are employed to fulfill the customer's needs.

### Alloys Designation أنواع السبائك

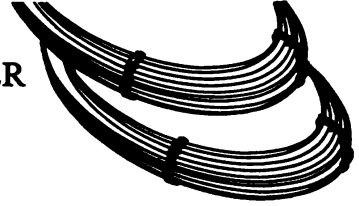
Ser.	Alloys	Specification	Chemical Composition		
			Cu	Ni	Other Elements
1.	Sf-Cu	DIN 1787	99.90	---	P= 0.015-0.040
2.	Cu Ni5	DIN 17664	Rest	4.0-6.0	0.1 Max.

### Dimensions and Physical Properties الأبعاد والمواصفات الفيزيائية

Ser.	Shape of Product	Physical Properties	Dimensions (mm)
1.	Profile	DIN 17672	PM; PM 119; PM 110 (For Cu) PI 4; PI 5; PI 10; PI 11 (For Cu Ni5) (Special dimensions for the driving bands for heavy artillery)



## WIRES BRASS & COPPER



*Al Shaheed Brass... A history of tradition, dedicated to excellence*

Backed by uncompromising knowledge and expertise, Al Shaheed Brass produces both copper and brass wire in coils. This product line is made with a timeless dedication to detail that meets the industry's most exacting standards. Quality wire products complement the Al Shaheed product line and are offered in a wide variety of sizes and alloys as directed by each customer's requirements.

### Alloys Designation      انواع السبائك

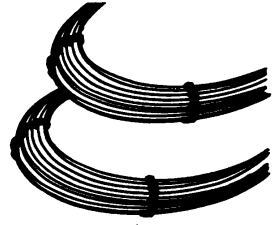
Ser.	Alloy	Specification	Chemical Composition			
			Cu	Zn	Pb	Other Elements
1.	E - Cu 58	DIN 1787	99.90	---	---	---
2.	Cu Zn 39 Pb1	DIN 17660	59.5-61.5	Rest	1.0-2.0	0.96 Max.
3.	Cu Zn 37 Pb3		60.0-62.0		2.5-3.5	0.97 Max.

### Dimensions and Physical Properties      الأبعاد والخواص الفيزيائية

Ser.	Shape of Product	Physical Properties	Diameter (mm)
1.	Wires	DIN 40500 (For Copper)  DIN 17677 (For Brass)	0.69-3.5 For Copper On Spools, Soft  5-12 For Brass On Coils 40-50kg Half Hard And Hard



## WIRES LEAD/ANTIMONY



*Al Shaheed Brass... A history of tradition, dedicated to excellence*

Al Shaheed Brass produces a wide range of products that includes Lead/Antimony Wire to fill a specialized industry need. This alloy is backed by Al Shaheed's strict quality assurance program. A wide variety of sizes of Lead/Antimony Wires are produced at Al Shaheed's comprehensive and fully equipped facility.

### Alloys Designation      انواع السبائك

Ser.	Alloy	Specification	Chemical Composition		
			Pb	Sb	Other Elements
1.	Pb Sb 10	Pb 90%	89.0-91.0	9.0-10.0	0.2 Max
2.	Pb Sb 2.5	Pb 97.5%	97.0-98.0	2.0-3.0	
3.	Pb Sb 2	Pb 98%	97.8-98.2	1.8-2.2	
4.	Pb	Pb	99.90	---	0.01 Max.

### Dimensions and Physical Properties      الأبعاد والمواصفات الفيزيائية

Ser.	Shape of Product	Physical Properties	Diameter (mm)
1.	Wires and Ingots	Density 10.5-11.2 gm/cm <sup>3</sup>	5.9-10.1

# TREASURY NEWS



Department of the Treasury • Washington, D.C. • Telephone 566-2041

FOR IMMEDIATE RELEASE  
April 1, 1991

Contact: Barbara Clay  
202-566-5252

PRESS RELEASE

JOHN E. ROBSON  
DEPUTY SECRETARY OF THE TREASURY  
APRIL 1, 1991

Today the Treasury Department is revealing the names of 89 businesses and individuals determined to be agents and front companies in Iraq's arms procurement and financial network.

While this action may lack the spectacular drama of Operation Desert Storm, it represents an important companion effort by the United States to bring stability to the region. It will disrupt the ability of Saddam Hussein or a successor to employ this network to rebuild Iraq's military capacity or to divert funds that rightfully belong to the Iraqi people for other nefarious purposes or personal gain.

The events that culminated in Iraq's invasion of Kuwait last August 2nd began long before.

For over the last decade, Saddam strengthened the sinews of his war machine through a sophisticated network of front companies and agents. Through it he got weapons, spare parts, machine tools, and raw materials necessary to sustain his militarized state. And through it he may have hidden away ill-gotten fruits of embezzlements from the Iraqi people. We want the network exposed. And we want it neutralized.

By declaring these front companies and agents to be Specially Designated Nationals of Iraq, we are putting the world on notice that when you deal with them, you're dealing with Saddam. And exposure of the network may also assist the allied nations in discovering hidden wealth that could be used to pay part of Iraq's war reparations.

I should point out, however, that despite considerable speculation, neither we nor anyone else knows the specific dollar amount of hidden assets. As the investigation of this network's operations goes forward we hope to learn more. But at this point it is inappropriate for us to speculate about the amount of assets that may have been diverted.

Treasury's action today places these companies and individuals under the trade embargo and asset freeze that President Bush imposed following the invasion of Kuwait. This

NB-1205

means that they are cut off from their financial assets and business relations within our jurisdiction and that their ability to serve Saddam is disrupted.

Months of hard investigative work under the leadership of Treasury's Office of Foreign Assets Control went into producing this information. But the job is not finished. And I want to emphasize that the fact that a name or a company isn't on this list does not imply the U.S. Government's seal of approval. We have many more cases under investigation.

Throughout the embargo we've worked closely with our allies. We are asking them to join us in this effort by taking similar steps to expose and neutralize Saddam's known agents and front companies in their jurisdictions. Worldwide cooperation will help eliminate this network.

Thank you.

# TREASURY NEWS



Department of the Treasury • Washington, D.C. • Telephone 566-2041

EMBARGOED FOR RELEASE AT 1:00 PM  
April 1, 1991

CONTACT: Barbara Clay  
202-566-5252

## TREASURY NAMES IRAQ'S AGENTS

The Treasury Department today identified 52 businesses and 37 individuals worldwide as front companies and agents of Iraq. The action is part of an ongoing investigation by Treasury of Iraq's worldwide arms and financial complex.

In announcing the action, Treasury Deputy Secretary Robson said, "Exposing these companies and individuals strikes a blow at Iraq's subterranean network in the world of arms trading and clandestine financial operations."

As a result of today's action by the Treasury's Office of Foreign Assets Control (OFAC), the companies and individuals are now considered "Specially Designated Nationals", or agents of the Government of Iraq, bringing them under the existing embargo and asset freeze put in place by President Bush against Iraq. All transactions with them under U.S. jurisdiction are prohibited unless licensed by the Treasury Department.

In addition, Treasury today named 160 Iraqi-owned or controlled merchant ships. These ships are now subject to embargo provisions that prohibit their use by U.S. businesses and individuals.

Doing business with an Iraqi specially designated national is equivalent to doing business with the Government of Iraq, which carries criminal penalties of up to \$1 million per violation for both corporations and individuals, as well as prison sentences of up to 12 years for individuals. Civil penalties of up to \$250,000 may be imposed administratively.

OFAC has established a special Iraqi assets telephone hotline through which anyone with information on companies or individuals holding Iraqi assets, or acting on behalf of Iraq may report that information to OFAC. All calls will be kept confidential. The number is 202-566-6045.

oOo

NB-1024

## DEPARTMENT OF THE TREASURY

## Office of Foreign Assets Control

31 CFR Part 575

Received in the Office  
of the Federal Register

## Iraqi Sanctions Regulations

2/27/61

11 10 61

AGENCY: Office of Foreign Assets Control, Department of the Treasury.

ACTION: Final Rule; List of Specially Designated Nationals of the Government of Iraq; List of Vessels Registered, Owned or Controlled by the Government of Iraq.

SUMMARY: The Iraqi Sanctions Regulations (the "Regulations") are being amended to add a new Appendix A and a new Appendix B to the end thereof. Appendix A contains the list of Individuals and Organizations Determined to be Within the Term "Government of Iraq" (Specially Designated Nationals of Iraq). The list at Appendix A contains the names of companies and individuals which the Director of the Office of Foreign Assets Control has determined are acting or purporting to act directly or indirectly on behalf of the Government of Iraq. Appendix B contains the names of merchant vessels registered, owned, or controlled by the Government of Iraq. These lists may be expanded or amended at any time.

- 2 -

EFFECTIVE DATE: [this rule is effective upon publication]

ADDRESS: Copies of these lists are available upon request at the following location: Office of Foreign Assets Control, U.S. Department of the Treasury, Annex, 1500 Pennsylvania Avenue, N.W., Washington, D.C. 20220.

FOR FURTHER INFORMATION CONTACT: Richard J. Hollas, Chief, Enforcement Section, Office of Foreign Assets Control, Tel.: (202) 566-5021.

SUPPLEMENTARY INFORMATION: The Iraqi Sanctions Regulations, 31 C.F.R. Part 575 (56 FR 2112, Jan. 18, 1991, the "Regulations") were issued by the Treasury Department to implement Executive Orders No. 12722 and 12724 of August 2 and August 9, 1990, in which the President declared a national emergency with respect to Iraq, invoking the authority, inter alia, of the International Emergency Economic Powers Act (50 U.S.C. 1701 et seq.) and the United Nations Participation Act (22 U.S.C. 287c), and ordered specific measures against the Government of Iraq.

Section 575.306 of the Regulations defines the term "Government of Iraq" to include:

- (a) The state and the Government of Iraq, as well as any political subdivision, agency, or instrumentality thereof, including the Central Bank of Iraq;



(b) Any partnership, association, corporation, or other organization substantially owned or controlled by the foregoing;

(c) Any person to the extent that such person is, or has been, or to the extent that there is reasonable cause to believe that such person is, or has been, since the effective date, acting or purporting to act directly or indirectly on behalf of any of the foregoing; and

(d) Any other person or organization determined by the Director of the Office of Foreign Assets Control to be included within this section.

Determinations that persons fall within this definition are effective upon the date of determination by the Director, Office of Foreign Assets Control ("FAC"). Public notice is effective upon the date of publication or upon actual notice, whichever is sooner.

This rule adds Appendix A to Part 575 to provide public notice of a list of persons, known as "specially designated nationals" of the Government of Iraq. The list consists of companies and individuals whom the Director of the Office of Foreign Assets Control has determined to be owned or controlled by or to be acting or purporting to act directly or indirectly on behalf of the Government of Iraq, and thus fall within the definition of the "Government of Iraq" contained in section 575.306 of the Regulations. The persons included in Appendix A are subject to all prohibitions applicable to other components of

the Government of Iraq. All unlicensed transactions with such persons, or in property in which they have an interest, are prohibited.

The list of specially designated nationals is a partial one, since FAC may not be aware of all the persons located outside Iraq that might be owned or controlled by the Government of Iraq or acting as agents or front organizations for Iraq, and which thus qualify as specially designated nationals of the Government of Iraq. Therefore, persons engaging in transactions may not rely on the fact that any particular person is not on the specially designated nationals list as evidence that it is not owned or controlled by, or acting or purporting to act directly or indirectly on behalf of, the Government of Iraq. The Treasury Department regards it as incumbent upon all U.S. persons to take reasonable steps to ascertain for themselves whether persons they enter into transactions with are owned or controlled by the Government of Iraq or are acting or purporting to act on its behalf, or on behalf of other countries subject to blocking (at present, Cambodia, Cuba, Libya, North Korea, and Vietnam).

This rule also adds Appendix B to Part 575 to provide public notice of a list of merchant vessels which the Director of the Office of Foreign Assets Control has determined to be registered, owned, or controlled by the Government of Iraq or by persons acting or purporting to act directly or indirectly on behalf of the Government of Iraq, pursuant to section 575.306 of the

Regulations. The merchant vessels included in Appendix B constitute blocked property in which the Government of Iraq has an interest, and are subject to all the prohibitions applicable to the Government of Iraq. No U.S. person may engage in any unlicensed transaction involving these vessels.

The list of Government of Iraq-flagged, owned, or controlled vessels is a partial one, since FAC may not be aware of all merchant ships registered, owned, or controlled by the Government of Iraq or by persons located outside Iraq that may be acting as agents or front organizations for Iraq who fall within the definition of "Government of Iraq." Therefore, persons engaging in transactions may not rely on the fact that any particular vessel is not on the list as evidence that it is not owned or controlled by the Government of Iraq. The Treasury Department regards it as incumbent upon all U.S. persons to take reasonable steps to ascertain for themselves whether such vessels are registered, owned, or controlled by Iraq or by other countries subject to blocking or transportation-related restrictions (at present, Cambodia, Cuba, Libya, North Korea, and Vietnam).

Section 586E of the Iraq Sanctions Act of 1990, contained in the Foreign Operations Authorization and Appropriations Act of 1990, dated November 5, 1990, 104 Stat. 1979, provides for civil penalties not to exceed \$250,000 for violations of the Regulations and fines of up to \$1,000,000 and imprisonment for up to 12 years for willful violations of the Regulations. In

addition, Section 5(b) of the United Nations Participation Act of 1945 (22 U.S.C. 287c(b)) provides for the forfeiture of any property involved in a violation of the Regulations.

1. The authority citation for Part 575 continues to read as follows: 50 U.S.C. 1701 et seq.; 50 U.S.C. 1601 et seq.; 22 U.S.C. 287c; Pub. L. 101-513, 104 Stat. 2047-55 (Nov. 5, 1990); 3 U.S.C. 301; E.O. 12722, 55 FR 31803 (Aug. 3, 1990); E.O. 12724, 55 FR 33089 (Aug. 13, 1990).

2. Appendices A and B to Part 575 -- APPENDIX A TO PART 575-- INDIVIDUALS AND ORGANIZATIONS DETERMINED TO BE WITHIN THE TERM "GOVERNMENT OF IRAQ" (SPECIALLY DESIGNATED NATIONALS OF IRAQ); APPENDIX B TO PART 575--MERCHANT VESSELS REGISTERED, OWNED, OR CONTROLLED BY THE GOVERNMENT OF IRAQ OR BY PERSONS ACTING DIRECTLY OR INDIRECTLY ON BEHALF OF THE GOVERNMENT OF IRAQ -- are added to read as follows:

## APPENDIX A

INDIVIDUALS AND ORGANIZATIONS  
DETERMINED TO BE SPECIALLY DESIGNATED NATIONALS  
OF THE GOVERNMENT OF IRAQ

Please note that addresses of companies and persons may change. The addresses listed below are the last ones known to the Office of Foreign Assets Control. Where an address is not listed or someone wishes to check for latest address information, the Office of Foreign Assets Control will assist with any updated information in its possession.

COMPANIES

1. ADMINCHECK LIMITED  
1 Old Burlington Street  
London, England  
United Kingdom
2. ADVANCED ELECTRONICS DEVELOPMENT, LTD.  
3 Mandeville Place  
London, England  
United Kingdom
3. AL-ARABI TRADING COMPANY LIMITED  
Lane 11, Hai Babil  
Baghdad District 929  
Iraq.
4. AL-RAFIDAIN SHIPPING COMPANY  
Bombay  
India
5. THE ARAB PETROLEUM ENGINEERING COMPANY LTD.  
Amman  
Jordan
6. ARAB PROJECTS COMPANY S.A. LTD.  
P.O. Box 1318  
Amman  
Jordan  
  
P.O. Box 7939  
Beirut  
Lebanon  
  
P.O. Box 1972  
Riyadh  
Saudi Arabia

7. ARAB TRANS TRADE CO. S.A.E.  
36, Kaft Abdou Street  
Rouchdy, Alexandria 481 638  
Egypt
8. ARCHI CENTRE I.C.E. LIMITED  
3 Mandeville Place  
London, England  
United Kingdom
9. ARCHICONSULT LIMITED  
128 Buckingham Place  
London 5, England  
United Kingdom
10. ASSOCIATED ENGINEERS  
England  
United Kingdom
11. A.T.E. INTERNATIONAL LTD.  
f/k/a RWR INTERNATIONAL COMMODITIES  
3 Mandeville Place  
London, England  
United Kingdom
12. ATLAS AIR CONDITIONING COMPANY LIMITED  
55 Roebuck House  
Palace Street  
London, England  
United Kingdom
13. ATLAS EQUIPMENT COMPANY LIMITED  
55 Roebuck House  
Palace Street  
London, England  
United Kingdom
14. A.W.A. ENGINEERING LIMITED  
3 Mandeville Place  
London, England  
United Kingdom
15. BANCO BRASILEIRO-IRAQUIANO S.A.  
Praça Pio X, 54-10o Andar  
CEP 20091, Rio de Janeiro  
Brazil (Head office and city branch)
16. BAY INDUSTRIES, INC.  
10100 Santa Monica Boulevard  
Santa Monica, California  
United States

17. DOMINION INTERNATIONAL  
England  
United Kingdom
  18. ENDSHIRE EXPORT MARKETING  
England  
United Kingdom
  19. EUROMAC, LTD.  
4 Bishops Avenue  
Northwood, Middlesex  
England  
United Kingdom
  20. EUROMAC EUROPEAN MANUFACTURER CENTER SRL  
Via Ampere 5  
20052 Monza  
Italy
  21. EUROMAC TRANSPORTI INTERNATIONAL SRL  
Via Ampere 5  
20052 Monza  
Italy
  22. FALCON SYSTEMS  
England  
United Kingdom
  23. GEODESIGN  
England  
United Kingdom
  24. INVESTACAST PRECISION CASTINGS, LTD.  
112 City Road  
London, England  
United Kingdom
  25. I.P.C. INTERNATIONAL LIMITED  
England  
United Kingdom
  26. I.P.C. MARKETING LIMITED  
England  
United Kingdom
  27. IRAQI AIRWAYS  
Saddam International Airport  
Baghdad  
Iraq
- Opernring 6, 1010 Wien  
Vienna  
Austria

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General Service Agent  
Bangladeshi-owned Travel Agency  
Dhaka  
Bangladesh

Rio de Janeiro  
Brazil

Jianguomenwai Diplomatic Housing Compound  
Building 7-1, 5th Floor, Apartment 4  
Beijing  
People's Republic of China

Prague Airport  
Prague  
Czechoslovakia

Nekazanka 3  
Prague 1  
Czechoslovakia

Copenhagen  
Denmark

Main Eisenhuttenplatz 26  
Frankfurt 6  
Germany

Rome  
Italy

Tokyo  
Japan

Casablanca  
Morocco

The Netherlands

27, Ulica Grojecka  
Central Warsaw  
Poland

Tunis  
Tunisia

Ankara  
Turkey

Moscow  
U.S.S.R.

Abu Dhabi  
United Arab Emirates



4 Lower Regent Street  
London SW1Y 4P  
United Kingdom

5825 W. Sunset Blvd. #218  
Los Angeles, California 90028  
United States

25040 Southfield Road  
Southfield, Michigan 48075  
United States

Building 68  
J.F.K. International Airport  
Jamaica, New York 11430  
United States

1211 Avenue of the Americas  
New York, New York 10036  
United States

Sanaa  
Yemen

Belgrade  
Yugoslavia

- 28., IRAQI ALLIED SERVICES LIMITED  
England  
United Kingdom
29. IRAQI FREIGHT SERVICES LIMITED  
England  
United Kingdom
30. IRAQI REINSURANCE COMPANY  
31-35 Fenchurch Street  
London EC3M 3D  
United Kingdom
31. IRAQI STATE ENTERPRISE FOR FOODSTUFFS TRADING  
P.O. Box 1308  
Colombo '3  
Sri Lanka  
  
P.O. Box 2839  
Calcutta 700.001  
India
32. IRAQI STATE ENTERPRISE FOR MARITIME TRANSPORT  
Bremen  
Germany  
  
Amman  
Jordan

33. IRAQI TRADE CENTER  
Dubai  
United Arab Emirates
34. KEENCLOUD LIMITED  
11 Catherine Place  
Westminister  
London, England  
United Kingdom
35. MATRIX CHURCHILL CORPORATION  
5903 Harper Road  
Cleveland, Ohio 44139  
United States
36. MEED INTERNATIONAL LIMITED  
3 Mandeville Place  
London, England  
United Kingdom
37. PANDORA SHIPPING CO. S.A.  
Honduras
38. PETRA NAVIGATION & INTERNATIONAL TRADING CO. LTD.  
White Star Bldg., P.O. Box 8362  
Amman  
Jordan  
  
Armoush Bldg., P.O. Box 485  
Aqaba  
Jordan  
  
18 Huda Sharawi Street  
Cairo  
Egypt  
  
Hai Al Wahda Mahalat 906  
906 Zulak 50, House 14  
Baghdad  
Iraq
39. PMK/QUDOS (LIVERPOOL POLYTECHNIC)  
England  
United Kingdom
40. RAFIDAIN BANK  
New Banks' Street  
P.O. Box 11360  
Massarif, Baghdad  
Iraq (227 branches in Iraq)  
  
P.O. Box 607  
Manama  
Bahrain (2 branches in Bahrain)

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114 Tahreer Str. Eldukki  
P.O. Box 239, Omran Giza  
Cairo  
Egypt

P.O. Box 1194  
Cinema al-Hussein Street  
Amman  
Jordan

P.O. Box 685  
Aqaba  
Jordan

P.O. Box 815401  
Jabal Amman  
Jordan

Mafrag  
Jordan

2nd Floor Sadat Tower  
P.O. Box 1891  
Beirut  
Lebanon (2 branches in Lebanon)

Sheikh Khalifa Street  
P.O. Box 2727  
Abu Dhabi  
United Arab Emirates

Rafidain Bank Building  
7-10 Leadenhall Street  
London EC3V 1NL  
United Kingdom

P.O. Box 10023  
Sanaa  
Yemen Arab Republic

41. RAJBROOK LIMITED  
England  
United Kingdom

42. REYNOLDS AND WILSON  
England  
United Kingdom

43. S.M.I. SEWING MACHINES ITALY S.P.A.  
Italy

- 44. SOLLATEK  
England  
United Kingdom
- 45. TECHNOLOGY AND DEVELOPMENT GROUP LTD.  
Centric House 390/391  
Strand, London, England  
United Kingdom
- 46. T.E.G. LIMITED  
3 Mandeville Place  
London, England  
United Kingdom
- 47. T.M.G. ENGINEERING LIMITED  
Castle Row  
Horticultural Place  
Chiswick, London, England  
United Kingdom
- 48. T N K FABRICS LIMITED  
England  
United Kingdom
- 49. TRADING & MARITIME INVESTMENTS  
San Lorenzo  
Honduras
- 50. U.I. INTERNATIONAL  
England  
United Kingdom
- 51. UNIMAS SHIPPING  
138 El Geish Road, P.O. Box 44  
Alexandria  
Egypt
- 52. WHALE SHIPPING LTD.  
c/o Government of Iraq  
State Organization of Ports  
Maqal, Basrah  
Iraq

INDIVIDUALS

1. ABBAS, Abdul Hussein  
Italy
2. ABBAS, Kassim  
Italy
3. ABRAHAM, Trevor  
England  
United Kingdom
4. AHMAD, Rasem  
P.O. Box 1318  
Amman  
Jordan
5. AHMAD, Wallid Issa  
Iraq
6. AL-AMIRI, Adnan Talib Hassim  
43 Palace Mansions  
Hammersmith, London, England  
United Kingdom
7. AL-AZAWI, Dafir  
Iraq
8. AL-DAJANI, Leila N. S.  
P.O. Box 1318  
Amman  
Jordan
9. AL-DAJANI, Nadim S.  
P.O. Box 1318  
Amman  
Jordan
10. AL-DAJANI, Sa'ad  
P.O. Box 1318  
Amman  
Jordan
11. AL-HABOBI, Dr. Safa Haji J.  
Flat 4D Thorney Court  
Palace Gate  
Kensington, England  
United Kingdom
12. ALI, Abdul Mutalib  
Germany

13. ALLEN, Peter Francis  
"Greys", 36 Stoughton Lane  
Stoughton  
Leicestershire, England  
United Kingdom
14. AL-OGAILY, Akram H.  
Flat 2, St. Ronons Court  
63 Putney Hill  
London, England  
United Kingdom
15. AMARO, Joaquim Ferreira  
Praca Pio X, 54-10o Andar  
CEP 20091, Rio de Janeiro  
Brazil
16. ARMOUSH, Ahmad  
White Star Bldg.  
P.O. Box 8362  
Amman  
Jordan
17. ARMOUSH, Ali  
White Star Bldg.  
P.O. Box 8362  
Amman  
Jordan
18. AZIZ, Fouad Hamza  
Praca Pio X, 54-10o Andar  
CEP 20091, Rio de Janeiro  
Brazil
19. DAGHIR, Ali Ashour  
2 Western Road, Western Green  
Thames Ditton, Surrey, England  
United Kingdom
20. FATTAH, Jum'a Abdul  
P.O. Box 1318  
Amman  
Jordan
21. HAND, Michael Brian  
England  
United Kingdom
22. HENDERSON, Paul  
4 Copt Oak Close  
Tile Mill  
Coventry, Warwickshire, England  
United Kingdom

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23. JON, Hana Paul  
19 Tudor House  
Windsor Way  
Brook Green, London, England  
United Kingdom
24. JUME'AN, George  
P.O. Bcx 1318  
Amman  
Jordan
25. KADHUM, Dr. Fadel Jawad  
c/o Alvaney Court  
250 Finchley Road  
London, England  
United Kingdom
26. KHOSHABA, Robert Kambar  
15 Harefield Road  
Maidenhead, Berkshire, England  
United Kingdom
27. MOHAMED, Abdul Kader Ibrahim  
Jianguomenwai Diplomatic Housing Compound  
Building 7-1, 5th Floor, Apartment 4  
Beijing  
People's Republic of China
28. OMRAN, Karim Dhaidas  
Iraq
29. RAOUF, Khalid Mohammed  
Praca Pio X, 54-10o Andar  
CEP 20091, Rio de Janeiro  
Brazil
30. RICKS, Roy  
87 St. Mary's Frice  
Benfleet, Essex, England  
United Kingdom
31. SCHMITT, Rogerio Eduardo  
Praca Pio X, 54-10o Andar  
CEP 20091, Rio de Janeiro  
Brazil
32. SIM, Gilberto F.  
Praca Pio X, 54-10o Andar  
CEP 20091, Rio de Janeiro  
Brazil

33. SOUZA, Francisco Antonio  
Praca Pio X, 54-10o Andar  
CEP 20091, Rio de Janeiro  
Brazil
  34. SPECKMAN, Jeanine  
England  
United Kingdom
  35. TALL, Aktham  
P.O. Box 1318  
Amman  
Jordan
  36. TAVEIRA, A. Arnaldo G.  
Praca Pio X, 54-10o Andar  
CEP 20091, Rio de Janeiro  
Brazil
  37. ZAHRAN, Yousuf  
P.O. Box 1318  
Amman  
Jordan
- /



## APPENDIX B

MERCHANT VESSELS REGISTERED, OWNED, OR CONTROLLED BY  
THE GOVERNMENT OF IRAQ OR BY PERSONS ACTING DIRECTLY OR INDIRECTLY  
ON BEHALF OF THE GOVERNMENT OF IRAQ

- o All ships listed are Iraqi-flagged unless otherwise indicated.
- o "N/A" is listed where information is not available.

<u>Vessel Name</u>	<u>Ship Type</u>	<u>DWT</u>	<u>Call Sign</u>	<u>Owner</u>
1. AIN ZALAH	Tkr	36,330	HNAZ	Iraqi Oil Tankers Company, Basrah, Iraq
2. AL ANBAR	Tug	N/A	YIAV	Government of the Republic of Iraq. Managed by the State Organization of Iraqi Ports, Basrah, Iraq
3. AL FAO	Res	80	YIAN	State Org. of Iraqi Ports
4. AL KARAMAH	Tkr	12,882	HNKM	Iraqi Oil Tankers Company
5. AL KHALIDA	Tkr	7,155	HNKD	Iraqi Oil Tankers Company
6. AL MANSUR	Ycht	1,223	HNMR	Iraqi State Enterprise for Water Transport
7. AL MERBID	Svc	4,649	YIMD	State Org. of Iraqi Ports
8. AL MOSUL	Svc	1,219	YIAS	State Org. of Iraqi Ports
9. AL NAJAF	Svc	4,740	YINF	State Org. of Iraqi Ports
10. AL NASR	Svc	2,444	DDRH	State Org. of Iraqi Ports
11. AL NASR	Tkr	1,502	HNNR	Iraqi Oil Tanker Company
12. AL OMARAH	Tug	320	YIAW	State Org. of Iraqi Ports
13. AL RAMADI	Tug	320	YIAI	State Org. of Iraqi Ports
14. AL RASHEED	Svc	304	YIBE	State Org. of Iraqi Ports
15. AL RATBA	Tkr	544	YIBA	State Org. of Iraqi Ports
16. AL SHUMOOKH	Tug	375	N/A	State Org. of Iraqi Ports
17. AL WALEED	Res	N/A	YIBF	State Org. of Iraqi Ports

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<u>Vessel Name</u>	<u>Ship Type</u>	<u>DWT</u>	<u>Call Sign</u>	<u>Owner</u>
18. AL ZAB	Tug	N/A	YIBH	State Org. of Iraqi Ports
19. AL ZAWRAA	Cgo	3,549	HNZW	Iraqi State Enterprise for Water Transport, Baghdad
20. AL-ALYAA	Tug	375	N/A	State Org. of Iraqi Ports
21. AL-AMIN	Tug	368	YIAM	State Org. of Iraqi Ports
22. AL-BAATH	Tkr	9,928	HNBT	Iraqi Oil Tankers Company
23. AL-BAKR	Res	390	YIBR	State Org. of Iraqi Ports
24. AL-BAYAA	Brg	1,662	HNHB	Iraqi State Enterprise for Water Transport. Formerly the HIBOOB.
25. AL-ENTISAR	Tug	375	N/A	State Org. of Iraqi Ports
26. AL-HATHER	Tug	368	YIHR	State Org. of Iraqi Ports
27. AL-KARRKH	Tug	368	YIKH	State Org. of Iraqi Ports
28. AL-KHALIJ AL-ARABI	Svc	4,740	YIKA	State Org. of Iraqi Ports
29. AL-NOHOODH	Tug	375	YINU	State Org. of Iraqi Ports
30. AL-QADISIYA	Ycht	100	HNKS	Iraqi State Enterprise for Water Transport
31. AL-RESSAFA	Tug	368	YIRF	State Org. of Iraqi Ports
32. AL-SAHIL AL-ARABI	Svc	6,396	HNSA	Iraqi State Enterprise for Sea Fisheries, Basrah, Iraq
33. AL-THIRTHAR	Tkr	524	YITH	State Org. of Iraqi Ports
34. AL-WAHDAH	Tug	149	YIWH	State Org. of Iraqi Ports
35. ALABID	Brg	1,662	HNDB	Iraqi State Enterprise for Water Transport. Formerly the SANABUL.
36. ALEDREESI	Cgo	3,550	HNID	Iraqi State Enterprise for Water Transport
37. ALFARABI	Cgo	8,342	HNFB	Iraqi State Enterprise for Water Transport
38. ALFARAHIDI	Tkr	149,441	HNFR	Iraqi Oil Tankers Company

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<u>Vessel Name</u>	<u>Ship Type</u>	<u>DWT</u>	<u>Call Sign</u>	<u>Owner</u>
39. ALFIDAA	Brg	1,662	HNFD	Iraqi State Enterprise for Water Transport. Formerly the SILOWAT.
40. ALKHANSAA	Cgo	3,525	HNKN	Iraqi State Enterprise for Water Transport
41. ALKINDI	Cgo	8,342	HNKI	Iraqi State Enterprise for Water Transport
42. ALMUSTANSIRIYAH	Tkr	155,210	HNMS	Iraqi Oil Tankers Company
43. ALMUTANABBI	Tkr	130,241	HNMB	Iraqi Oil Tankers Company
44. ALNAJAF	Svc	4,740	YINF	State Org. of Iraqi Ports
45. ALQADISIYAH	Tkr	155,210	HNQS	Iraqi Oil Tankers Company
46. ALSUMOOD	Svc	6,977	YISD	State Org. of Iraqi Ports
47. ALTAAWIN ALARABI	Cgo	13,634	HNAI	Iraqi State Enterprise for Water Transport
48. ALWAHDA	Brg	1,662	HNAD	Iraqi State Enterprise for Water Transport
49. ALWASITTI	Cgo	8,343	HNWS	Iraqi State Enterprise for Water Transport
50. ALYARMUK	Tkr	149,371	HNKY	Iraqi Oil Tankers Company
51. ALZUBAIR	Svc	4,640	YIZR	State Org. of Iraqi Ports
52. AMURIYAH	Tkr	155,210	HNAM	Iraqi Oil Tankers Company
53. ANTARA	Svc	508	YIBD	State Org. of Iraqi Ports
54. ARBEEL	Tug	320	YIBB	State Org. of Iraqi Ports
55. BABA GURGUR	Tkr	36,397	HNGR	Iraqi Oil Tankers Company
56. BABYLON	Cgo	13,656	HNBB	Iraqi State Enterprise for Water Transport
57. BADR 7	Svc	647	N/A	Government of the Republic of Iraq, Ministry of Oil, State Company for Oil Projects, Baghdad, Iraq. (flag: Saudi Arabia)

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<u>Vessel Name</u>	<u>Ship Type</u>	<u>DWT</u>	<u>Call Sign</u>	<u>Owner</u>
58. BAGHDAD	Svc	2,900	YIAD	State Org. of Iraqi Ports
59. BAGHDAD	Cgo	13,656	HNBD	Iraqi State Enterprise for Water Transport
60. BALQEES	RO/RO	3,985	HNBL	State Organization for Iraq Government
61. BASRA	Svc	2,906	YIAB	State Org. of Iraqi Ports
62. BASRAH	Cgo	13,656	HNBS	Iraqi State Enterprise for Water Transport
63. BUZURGAN	Tkr	36,400	HNBR	Iraqi Oil Tankers Company
64. DAMASCUS	Tug	149	YIDS	State Org. of Iraqi Ports
65. DAMEN GORINCHEM 5716	Svc	N/A	N/A	State Org. of Iraqi Ports
66. DAMEN GORINCHEM 5717	Svc	N/A	N/A	State Org. of Iraqi Ports
67. DAMEN GORINCHEM 5718	Svc	N/A	N/A	State Org. of Iraqi Ports
68. DEYALA	Tug	350	YIBJ	State Org. of Iraqi Ports
69. DIJLAH	Tug	356	HNDJ	State Org. of Iraqi Ports
70. DIVING LAUNCH 1	Svc	N/A	N/A	State Org. of Iraqi Ports
71. DIWANIYA	Tug	350	YIBK	State Org. of Iraqi Ports
72. DOCKAN	Tkr	528	YIDN	State Org. of Iraqi Ports
73. DUMP BARGE I	Svc	1,330	J8IY	Whale Shipping Ltd., c/o State Org. of Iraqi Ports (flag: Gibraltar)
74. DUMP BARGE II	Svc	1,330	J8IZ	Whale Shipping Ltd., c/o State Org. of Iraqi Ports (flag: Gibraltar)
75. DUMP BARGE III	Svc	1,330	J8JA	Whale Shipping Ltd., c/o State Org. of Iraqi Ports (flag: Gibraltar)
76. FIRE BOAT No. 705	Svc	N/A	N/A	State Org. of Iraqi Ports
77. FIRE BOAT No. 706	Svc .	N/A	N/A	State Org. of Iraqi Ports

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<u>Vessel Name</u>	<u>Ship Type</u>	<u>DWT</u>	<u>Call Sign</u>	<u>Owner</u>
78. FOREL	Fsh	1,163	HNFL	Rafidain Fisheries Co. Ltd., Basrah, Iraq
79. FURAT	Tug	350	HNFT	State Org. of Iraqi Ports
80. GAZA	Svc	2,422	YIGZ	State Org. of Iraqi Ports
81. HAMDAN	Tug	387	YIHM	State Org. of Iraqi Ports
82. HEET	Tug	89	N/A	State Org. of Iraqi Ports
83. HILLAH	Svc	6,709	YIAR	State Org. of Iraqi Ports
84. HIMREEN	Svc	508	YIHN	State Org. of Iraqi Ports
85. HITIN	Tkr	155,210	HNHT	Iraqi Oil Tankers Company
86. IBN KHALDOON	Svc	12,670	HNIN	State Org. of Iraqi Ports
87. IBN MAJID 6	Svc	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia)
88. IMHEJRAN	Tug	386	YIMH	State Org. of Iraqi Ports
89. JABHA	Tug	244	YIJA	State Org. of Iraqi Ports
90. JAMBUR	Tkr	35,338	HNJM	Iraqi Oil Tankers Company
91. JAMHORIA	Tug	368	YIJR	State Org. of Iraqi Ports
92. KEFAL	Fsh	1,170	HNKL	Rafidain Fisheries Co. Ltd.
93. KERBALA	Svc	N/A	N/A	State Org. of Iraqi Ports
94. KHALID IBIN AL WALEED	Svc	2,235	YIBM	State Org. of Iraqi Ports
95. KHANAQIN	Tkr	35,338	HNKQ	Iraqi Oil Tankers Company
96. KHAWLA BINT AL ZAWRA	RO/RO	3,985	HNKH	Iraqi State Enterprise for Water Transport
97. KIRKUK	Tkr	35,338	HNKK	Iraqi Oil Tankers Company
98. MANDALI	Svc	6,977	YIQS	State Org. of Iraqi Ports. Formerly the ALKADISIYAH.
99. MAYSALOON	Tug	368	YIMY	State Org. of Iraqi Ports
100. MEASAN	Tug	310	YIMN	State Org. of Iraqi Ports

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<u>Vessel Name</u>	<u>Ship Type</u>	<u>DWT</u>	<u>Call Sign</u>	<u>Owner</u>
101. METHAQ	Tug	248	YIMQ	State Org. of Iraqi Ports
102. MOON LADY	RO/RO	3,985	HNNZ	Pandora Shipping Co., S.A., Honduras. Managed by Petra Navigation & International Trading Co. Ltd., Amman, Jordan. Formerly the Iraqi-owned AL-ZAHRAA. (flag: Honduras)
103. NAGROOR	Fsh	140	N/A	Government of the Republic of Iraq, Ministry of Agriculture & Agrarian Reform, State Fisheries Company, Baghdad, Iraq
104. NAINAWA	Tug	310	YINW	State Org. of Iraqi Ports
105. NISR	Svc	744	YISR	State Org. of Iraqi Ports
106. NO. 1	Svc	30	N/A	State Org. of Iraqi Ports
107. NO. 2	Svc	30	N/A	State Org. of Iraqi Ports
108. NUWAIBI	Fsh	140	N/A	Iraqi State Fisheries Co.
109. OHOD 5	Svc	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia)
110. OHOD 6	Svc	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia)
111. OHOD 7	Svc	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia)
112. OROOBA	Tug	368	YIOB	State Org. of Iraqi Ports
113. OTORI MARU No. 2	Svc	N/A	N/A	State Org. of Iraqi Ports
114. PALESTINE	Svc	4,649	YIFN	State Org. of Iraqi Ports
115. PILOT 393	Svc	N/A	N/A	State Org. of Iraqi Ports
116. PILOT 394	Svc	N/A	N/A	State Org. of Iraqi Ports
117. POLICE 1	Ptrl	N/A	N/A	State Org. of Iraqi Ports
118. POLICE 2	Ptrl	N/A	N/A	State Org. of Iraqi Ports
119. POLICE 3	Ptrl	N/A	N/A	State Org. of Iraqi Ports

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<u>Vessel Name</u>	<u>Ship Type</u>	<u>DWT</u>	<u>Call Sign</u>	<u>Owner</u>
120. RADHWA 18	Tug	N/A	N/A	Iraqi State Company for Oil Projects
121. RADHWA 19	Tug	N/A	N/A	Iraqi State Company for Oil Projects
122. RADHWA 20	Tug	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia)
123. ROBIAN	Fsh	129	N/A	Iraqi State Fisheries Company
124. RUMAILA	Tkr	36,330	HNRM	Iraqi Oil Tankers Company
125. SAIF SAAD	Svc	742	N/A	State Org. of Iraqi Ports
126. SAMARRA	Per	N/A	YIBC	State Org. of Iraqi Ports
127. SANAM	Svc	508	YISM	State Org. of Iraqi Ports
128. SBOOR	Fsh	129	HRN2	Iraqi State Fisheries Company
129. SEABANK	Fsh/Cgo	6,953	HQHR4	Trading & Maritime Investments, Honduras. Managed by Arab Trans Trade Co. S.A.E., Alexandria, Egypt. Formerly the Iraqi-owned AL-BAHAR AL-ARABI (flag: Honduras).
130. SEAMUSIC II	Cgo	26,732	9HYH2	Seamusic Shipping Co. Ltd., c/o Thenamaris Ships Management Inc., Athens, Greece. Vessel seized by Government of Iraq. (flag: Malta)
131. SEBAA NISSAN	Tug	368	YISN	State Org. of Iraqi Ports
132. SHABOOT	Fsh	1,163	HNLK	Rafidain Fisheries Co. Ltd.
133. SHATT AL BASRAH	Fsh	404	HNSR	Iraqi State Fisheries Company
134. SHOROOK	Svc	403	YISH	State Org. of Iraqi Ports
135. SHU' ALAH	Tug	N/A	N/A	State Org. of Iraqi Ports
136. SIHAN	Tug	387	YISI	State Org. of Iraqi Ports
137. SINAI	Svc	1,286	N/A	State Org. of Iraqi Ports
138. SINJAR	Svc	N/A	YIAY	State Org. of Iraqi Ports

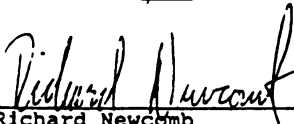

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<u>Vessel Name</u>	<u>Ship Type</u>	<u>DWT</u>	<u>Call Sign</u>	<u>Owner</u>
139. SKY SEA	Cgo	8,334	HNRZ	Pandora Shipping Co. S.A., Honduras. Managed by Petra Navigation & International Trading Co. Ltd., Amman, Jordan. Formerly the Iraqi-owned ALRAZI. (flag: Honduras)
140. SOLNECHNIK	Fsh	404	UOJE	Iraqi State Fisheries Company
141. SULAIMANIYAH	Svc	N/A	YIAG	State Org. of Iraqi Ports
142. SURVEY LAUNCH No. 1	Res	N/A	N/A	State Org. of Iraqi Ports
143. SURVEY LAUNCH No. 2	Res	N/A	N/A	State Org. of Iraqi Ports
144. SURVEY LAUNCH No. 3	Res	N/A	N/A	State Org. of Iraqi Ports
145. TADMUR	Tkr	3,627	HNTD	Iraqi Oil Tankers Company
146. TAHREER	Svc	4,649	YITR	State Org. of Iraqi Ports
147. TARIK IBN ZIYAD	Tkr	118,139	HNTZ	Iraqi Oil Tankers Company
148. THEEQAR	Tug	220	YIAC	State Org. of Iraqi Ports
149. UR	Tug	368	YIUR	State Org. of Iraqi Ports
150. WORK BOAT No. 6	Brg	N/A	N/A	State Org. of Iraqi Ports
151. WORKSHIP 3	Svc	N/A	N/A	State Org. of Iraqi Ports
152. YANBU 31	Svc	N/A	N/A	Iraqi State Company for Oil Projects (flag: Saudi Arabia)
153. YOUSIFAN	Tug	386	YIYN	State Org. of Iraqi Ports
154. ZAIN AL QAWS	Cgo	9,247	HNZQ	Iraqi State Enterprise for Water Transport
155. ZAMZAM	Tkr	544	YIAZ	State Org. of Iraqi Ports
156. ZANOOBIA	Cgo	3,549	HNZN	Iraqi State Enterprise for Water Transport.
157. ZUBAIDY	Fsh	N/A	YIBO	State Org. of Iraqi Ports



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<u>Vessel Name</u>	<u>Ship Type</u>	<u>DWT</u>	<u>Call Sign</u>	<u>Owner</u>
158. 1 ATHAR	Tkr	1,502	HNAR	Iraqi Oil Tankers Company
159. 1 HURIZAN	Tkr	1,502	HNNH	Iraqi Oil Tankers Company
160. 7 NISSAN	Tkr	1,502	HNNN	Iraqi Oil Tankers Company

Dated: March 13, 1991  
\_\_\_\_\_  
R. Richard Newcomb  
Director  
Office of Foreign Assets ControlApproved: March 15, 1991  
\_\_\_\_\_  
John P. Simpson  
Acting Assistant Secretary  
(Enforcement)

QUESTIONS SUBMITTED TO MARSHALL W. WILEY BY HON. HENRY B. GONZALEZ

1. In your dealings with the Iraqis, was there ever indication of anti-Israeli sentiment on the part of the Iraqis? Did you receive any hints that companies which did not do significant business with Israel would be favored by the Iraqis?

The Iraqis shared the sense of historic injustice common to the Arab world over the dispossession of the Palestinians. They took the position that any settlement of the Arab-Israeli dispute that was acceptable to the Palestinians would be acceptable to them.

The Iraqis participated in the Arab League boycott of Israel. In common with Saudi Arabia, Syria, and all other Eastern Arab countries, the Iraqis observed the Arab League regulations and would not do business with U.S. companies on the Arab League black list.

2. You state that "To the extent that allegations (of the use of poison gas on the Kurds) are true you find such actions abhorrent, as if the allegations are unproven. Do you believe that the Kurds were not gassed? Should the use of poison gas have given chemical companies pause in dealing with the Iraqis, or do you believe that concerns about gassing civilians have no place in business considerations?"

I do not have access to the classified information upon which the allegations of the use of poison gas were based. I am therefore not in a position to make an informed judgment on the conflicting claims made by the various parties concerning these allegations.

The possible use of poison gas, cluster bombs or other weapons of mass destruction should have a role in business considerations, particularly if they are used, or might be used, against civilian populations. I would favor international agreements to limit or remove all such weapons from the area.

3. Are you surprised by the number of Iraqi front companies identified by the Treasury Department and the way Iraq set up a secret network to obtain western technology? Did you have any idea that Iraq had such a network?

To my knowledge, there are only two small U.S. companies on the Treasury list, one of which went out of business before the list appeared. I was not familiar with Iraq's purchasing operations in other parts of the world, but it does not seem to have been a serious problem as far as the U.S. business community is concerned. To the extent that U.S. companies violated U.S. export laws or regulations, they should, of course, be prosecuted. As far as I am aware, there have been very few prosecutions to date despite intensive investigative efforts by the U.S. government and the media.

4. In your testimony, you say that you assumed that the Iraqi government had some arrangement with BNL in Rome. What led you to this assumption?

My assumption was based on the fact that BNL was extending credit to U.S. agricultural exporters under the CCC credit guarantee program when other U.S. banks were unwilling to do so. Most banks seemed to believe that they could realize a better return on their capital with other types of loans. I had also heard that the Government of Iraq had substantial deposits with BNL in Italy and assumed that this might explain BNL's willingness to extend credit to U.S. exporters through the BNL branch in Atlanta.

5. In your testimony, you state that Iraq was unable to obtain bank credit from other U.S. banks. Do you (have) more specific information on banks which denied credit to Iraq or companies exporting to Iraq? Please provide us with any information along these lines that you may have.

The U.S.-Iraq Business Forum did not keep records on specific business transactions by member companies with Iraq. The Department of Agriculture and the EX-IM Bank would, of course, have specific information on the loans they guaranteed. By 1989, it was common knowledge in the U.S. business community that most U.S. banks would not confirm Iraqi letters of credit without some form of government guarantee. The Government of Iraq was careful to keep up to date on their payments on all U.S. government guaranteed loans until the USG froze Iraqi foreign exchange assets on August 3, 1990. Private U.S. banks, however, were reluctant to extend credit to Iraq because of Iraq's poor repayment record to creditors in other countries.

**Opening Statement of Henry B. Gonzalez, Chairman  
Committee on Banking, Finance and Urban Affairs  
U.S. House of Representatives**

**Full Committee hearing on the  
Banca Nazionale del Lavoro (BNL) Scandal**

**April 9, 1991**

Today's hearing is the second in a series of hearings aimed at getting to the bottom of the Banca Nazionale del Lavoro scandal. Since we held our first hearing last October on the Atlanta branch of BNL, which lent billions of dollars to what we now know as our enemy, Iraq, much has taken place. The Justice Department in February charged ten defendants, including two former officers and an employee of BNL-Atlanta, in a 347-count indictment with conspiracy, mail and wire fraud. In March, three former employees of BNL-Atlanta pled guilty to conspiracy to commit fraud and other charges. And, the Federal Reserve Board has issued a cease and desist order against BNL and ordered the bank to halt its violations of civil banking laws.

The documentation and information of the links between BNL funding and Iraq's procurement of military goods continue to grow, as does the knowledge that maybe someone did know that BNL was illegally funding Iraq and that Iraq was using the monies for its war machine. On February 21, I said on the House floor that I had obtained a memo indicating that a top ranking Administration official from a Cabinet-level department had knowledge that BNL money was used to purchase military goods.

Because of the importance of the BNL case, I believe it essential to find out how BNL could lend \$4 billion to Iraq without any of the banking regulators -- the Federal Reserve or five of the state banking regulatory agencies -- noticing. Even more sobering is the suggestion that someone in the Administration did know, and chose not to share this information with the Congress or the press.

The BNL case is the largest individual banking fraud case in history. As an oversight Committee, we are required to make sure that the banking regulators do their job. Yet, it was apparent at our October 16 BNL hearing, that the regulators had come well armed with excuses but apparently were unprepared to issue an apology for their lax supervision. How can anyone not be angered by this regulatory fiasco when we now know the human toll involved? This is not just another oversight hearing where we criticize the regulators for wasting tax dollars.

The lax work of our commercial bank regulators in not spotting the real situation at BNL and BCCI, the Luxembourg bank recently discovered to have secretly controlled First American Bankshares, the largest bank holding company in the nation's capital, leaves massive public policy questions.

It is time to take a serious look at the idea of a consolidation that will provide coherent supervision for banks. The foundation of our financial system must be a strict, take-charge regulatory body that is not a captive of the banks it regulates.

The theme of today's BNL hearing is to place the \$4 billion in loans to Iraq in perspective. After all, during the time BNL was lending these monies in a regulatory deficient environment, it was Administration policy to feed the Iraqi people and to bend over backwards to help Saddam Hussein upgrade his military capability. How could roughly \$2 billion in BNL loans go for Iraqi food purchases and about \$2 billion for goods and services ordered by the Iraqi Ministry of Industry and Military Production or to any other country's similar activities? Ours is the only country without safeguards to the national interest in such transactions.

I am placing in the record data sheets that provide details on BNL loans to Iraq. BNL loans were the grease that permitted the Iraqi procurement machine to function. BNL loans went directly to several Iraqi front companies. For the most part, BNL loans were used to pay hundreds of companies in the U.S. and abroad that were recruited by the Iraqi network to export goods to Iraq.

INFORMATION SUPPLIED BY RICHARD NEWCOMB IN ANSWER TO QUESTIONS

FROM HON. MARY ROSE OAKAR

#### NAC REVIEW OF BNL PARTICIPATION IN GSM PROGRAMS

The National Advisory Council on International Monetary and Financial Policy (NAC) does not review which individual banks are to lend under the USDA's GSM-102 and GSM-103 programs. During the NAC's early consideration of the CCC's proposal for the availability of guarantees in connection with sales to Iraq, and prior to any NAC action, agreement had been reached between counsel of the USDA and counsel of the bank that BNL would accept no further assignments of CCC guarantees. In fact, BNL took no additional assignments after October 1989. The main function of the NAC is to review individual proposals made by international financial institutions and U.S. Government agencies to undertake loans and other financial transactions, primarily for the purpose of coordinating affected agencies' policies and programs to the extent necessary or desirable. As its name indicates, the NAC is an advisory body; it does not generally become involved in the operational aspects of agency programs.

#### TREASURY VERIFICATION OF AGRICULTURAL EXPORTS UNDER GSM PROGRAMS

Treasury does not verify that only agricultural exports are shipped under GSM programs. Ordinarily, Treasury would not as a result of its role in the NAC independently verify the execution of transactions of another agency's international lending, guarantee or insurance operations. Verification is an operational question that is properly the primary responsibility of the agency managing the program. Elements of Treasury such as the Customs Service might, of course, assist operating agencies on certain aspects of their verification procedures.

The NAC has seven member agencies: Treasury, State, Office of U.S. Trade Representative, Commerce, Federal Reserve Board, Export-Import Bank, and the International Development Cooperation Agency. Other agencies such as Agriculture participate when matters of interest to them are before the NAC.

PAGE 39 (after line 866)

#### ENHANCED TREASURY OVERSIGHT OF CCC

Generally speaking, an expanded monitoring and oversight role for Treasury with respect to CCC operational activities does not appear needed. It is our understanding that, as a result of

revelations growing out of the BNL matter and other Iraqi actions with respect to CCC guarantees, the CCC has tightened its internal monitoring procedures. This would appear to be the most effective means of ensuring enhanced oversight of the CCC programs.



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